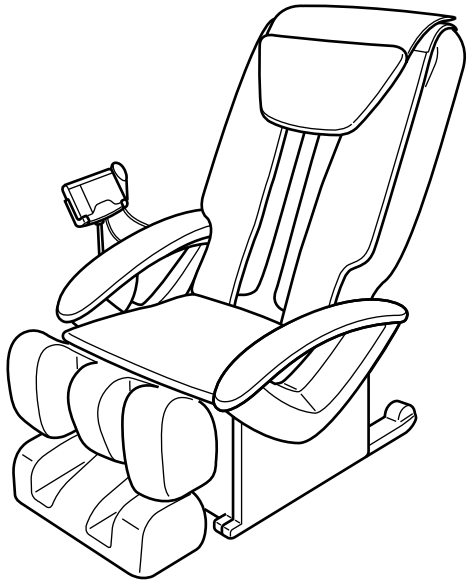
SANYO

FILE No.

SERVICE MANUAL

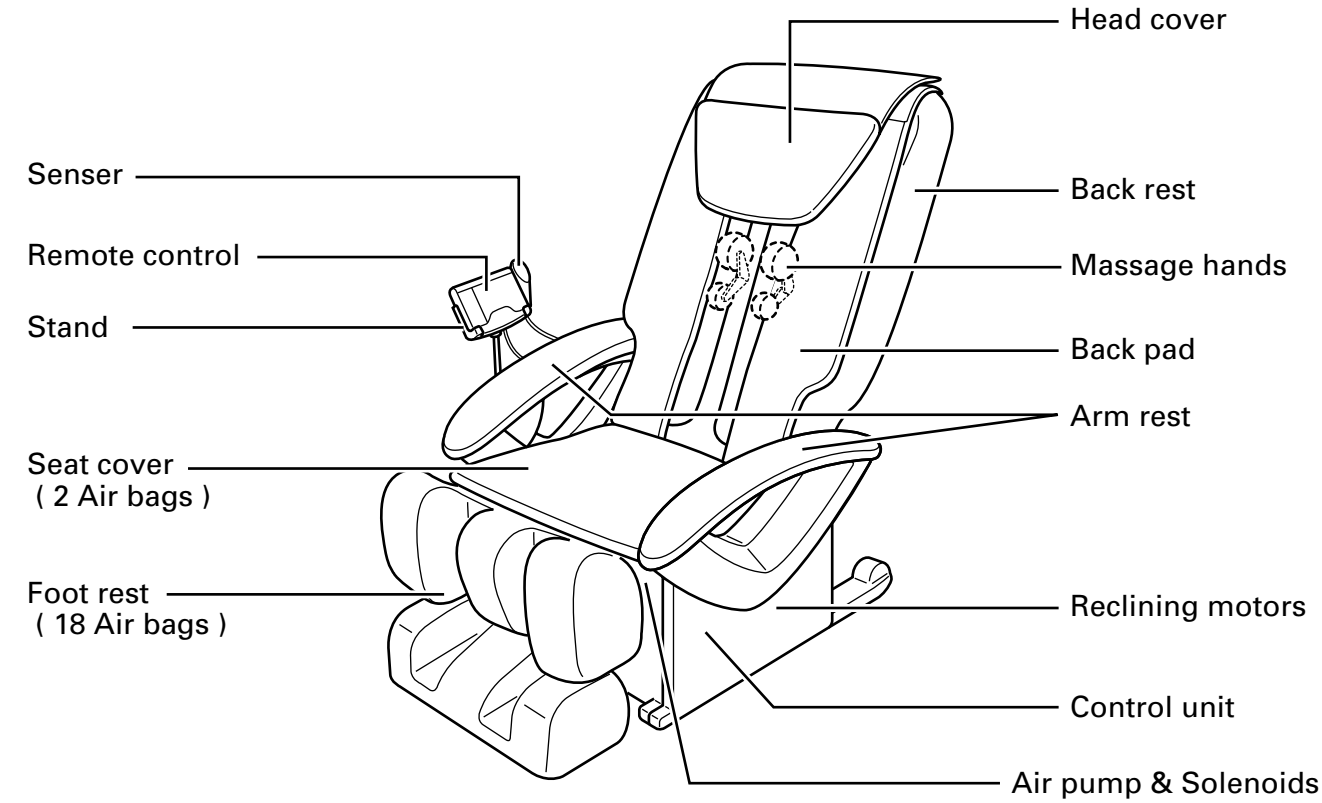
Chair Type Massager
(Massager Lounger)

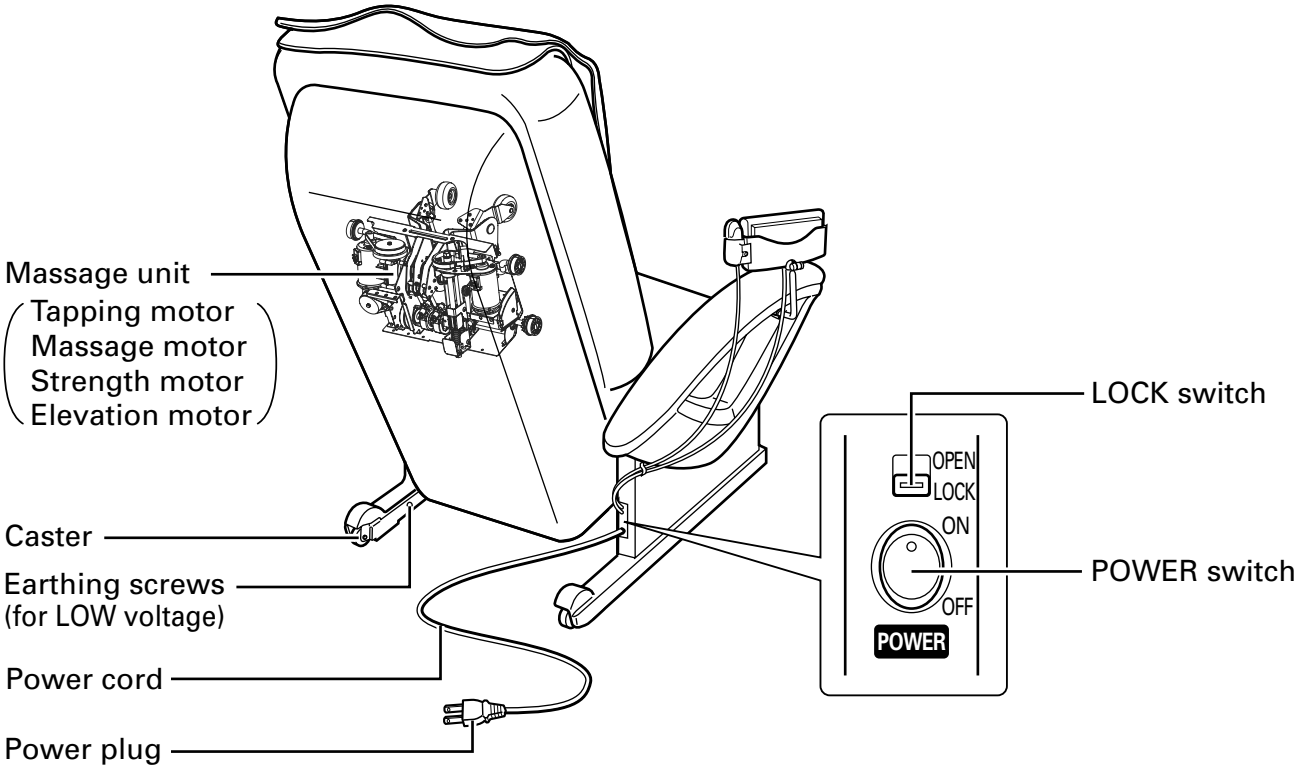
HEC-DR5000 (GENERAL)

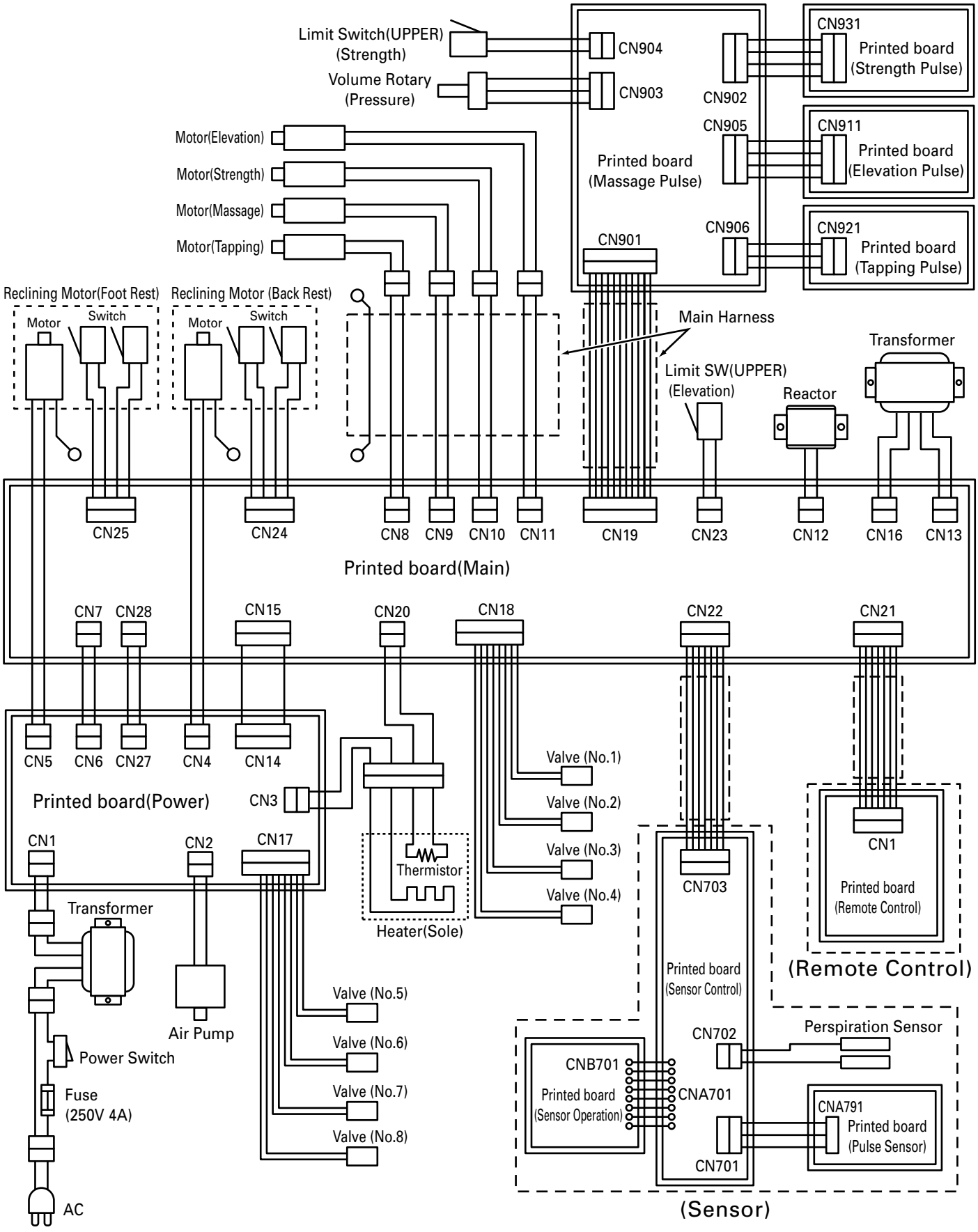


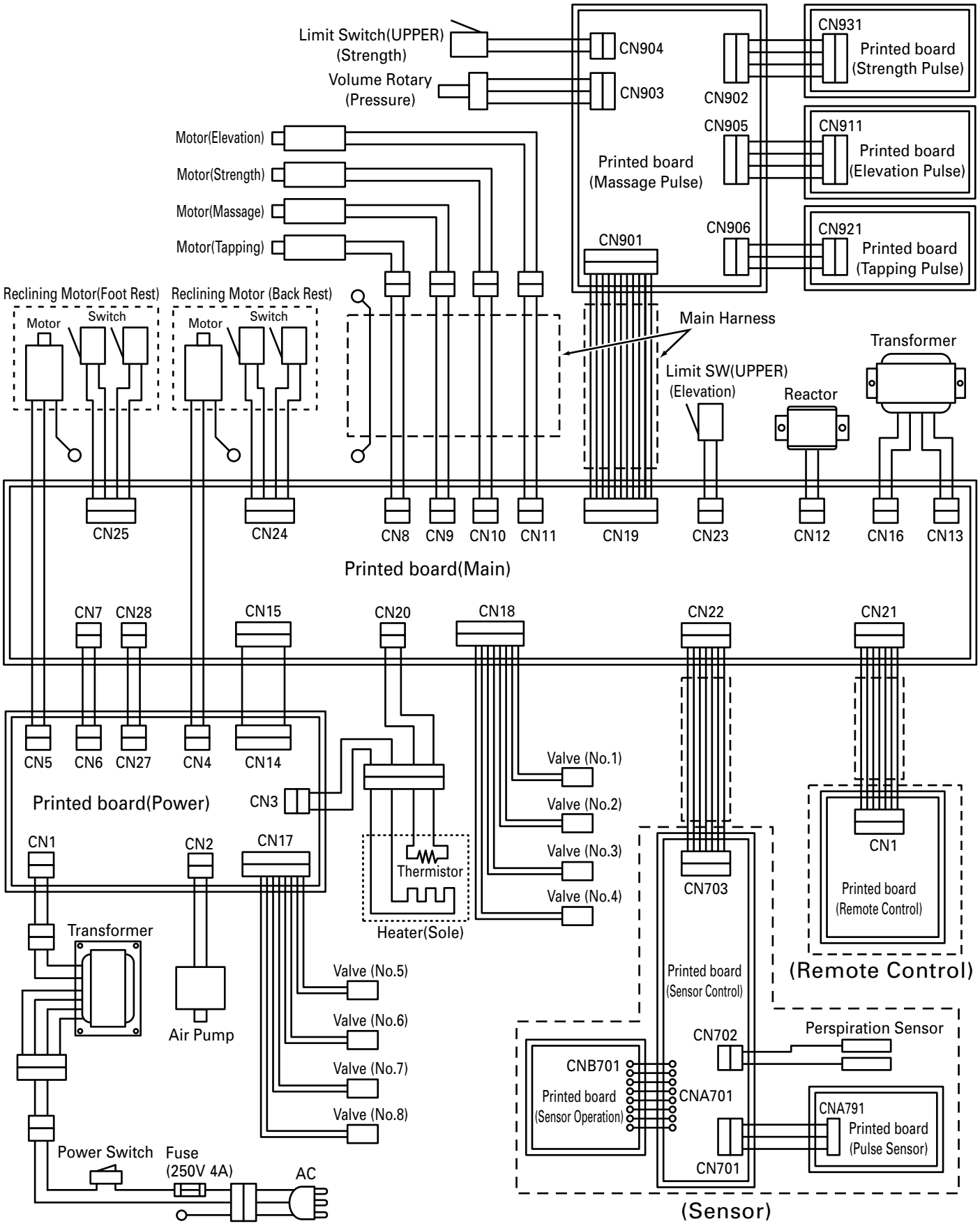
REFERENCE NO. SM6510488-00

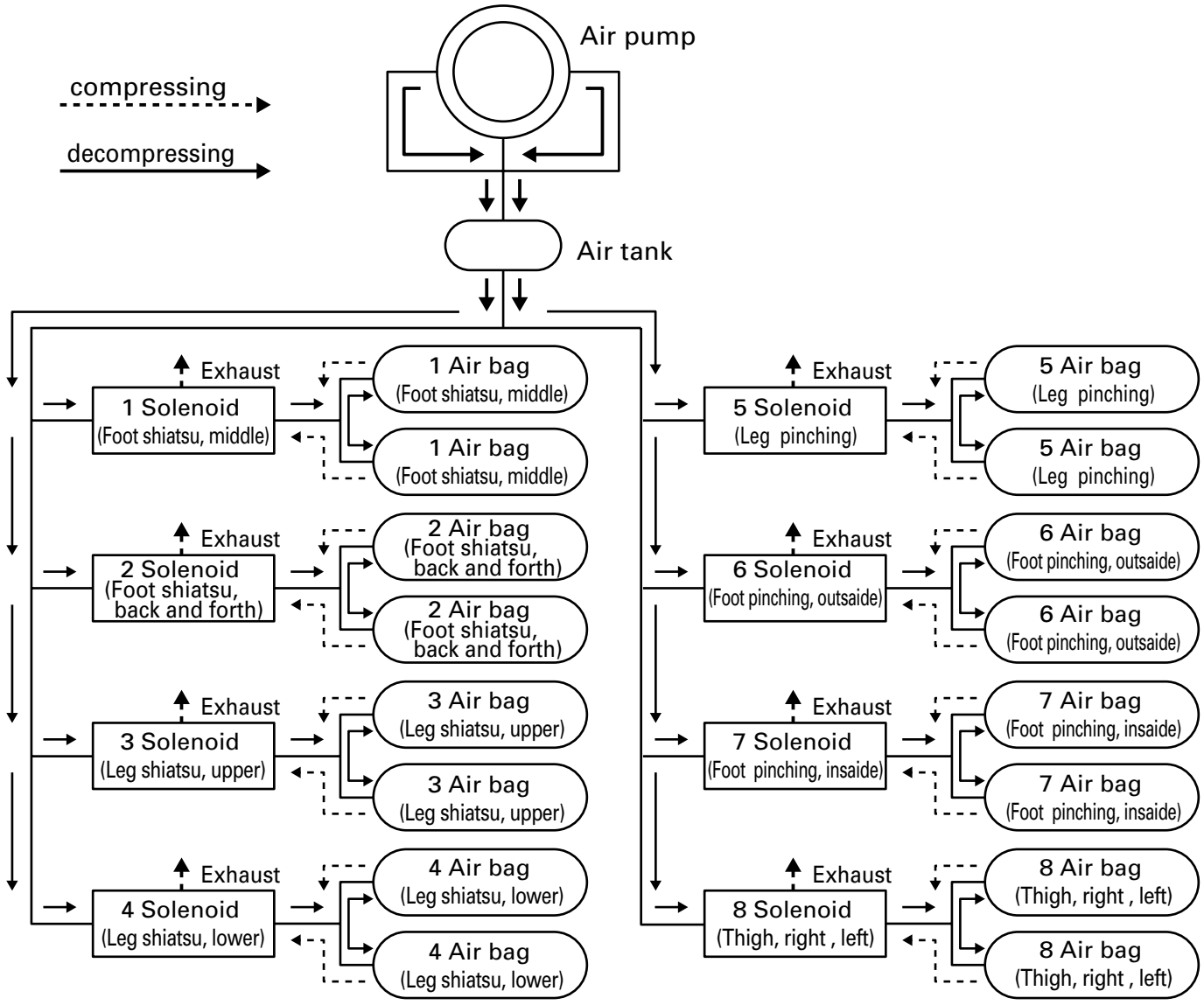
Power source	AC Local voltage 50/60 Hz
Power consumption	290 W
Rated time	30 minutes
Timer	(MANUAL COURSE) Approx. 15 minutes (WHOLE BODY SENSOR AUTOMATIC COURSE) Approx. 15 minutes (maximum Approx. 20 minutes) (AUTOMATIC COURSE) Approx. 15 minutes (maximum Approx. 20 minutes)
Dimensions	730 mm[width] x 1,240 mm[depth] x 1,200 mm[height] * When not reclined (with foot rest retracted) 730 mm[width] x 1,940 mm[depth] x 680 mm[height] * When reclined (with foot rest set horizontally)
Weight	Approx. 70kg
Accessories	Stand, Installation screws(Three)
Exterior cloth	Artificial leather 100%
Massaging Frequency	(5 stages) Approx. 10 times/min., 15 times/min., 20 times/min., 25 times/min., 30 times/min.
Tapping Frequency (Upper body)	(5 stages) Approx. 300 times/min., 390 times/min., 480 times/min., 540 times/min., 600 times/min.
Tapping width (Upper body)	(5 stages) Approx. 70mm, 85mm, 100mm, 115mm, 130mm Vartical movement speed
Vertical movement speed	One up/down pass in approx. 35 sec.
Backbone stretching width	(5 stages) Approx. 70mm, 85mm, 100mm, 115mm, 130mm Range of partial stretching
Range of partial stretching	Partial stretching(Long) :Repetition within Approx.200mm Partial stretching(Short) :Repetition within Approx.100mm
Massaging balls up/down range	Approx. 720 mm
Height adjustment of massaging balls	No gradation or 2cm/one press of button
Reclining angle	Approx. 120 - 170 degrees
Reclining method	Motor-driven type (Linked with foot rest)
Lower Body Massaging (Air pressure)	Strong: Approx. 27kPa Weak: Approx. 21kPa * There is a slight difference according to the part.


Head cover
Senser
Back rest
Remote control
Massage hands
Stand
Back pad
Arm rest
Seat cover
(2 Air bags)
Foot rest
(18 Air bags)
Reclining motors
Control unit
Air pump & Solenoids

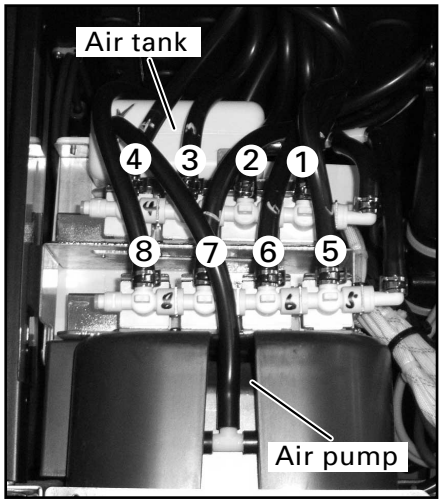

Massage unit
Tapping motor
Massage motor
Strength motor
Elevation motor
LOCK switch
OPEN
LOCK
ON
OFF
POWER
POWER switch
Caster
Earthing screws
(for LOW voltage)
Power cord
Power plug


Limit Switch(UPPER)
(Strength)
Volume Rotary
(Pressure)
CN904
CN903
CN902
CN931
Printed board
(Strength Pulse)
CN905
CN911
Printed board
(Elevation Pulse)
Printed board
(Massage Pulse)
CN906
CN921
Printed board
(Tapping Pulse)
CN901
Motor(Elevation)
Motor(Strength)
Motor(Massage)
Motor(Tapping)
Reclining Motor(Foot Rest)
Motor
Switch
Reclining Motor (Back Rest)
Motor
Switch
Main Harness
Transformer
Limit SW(UPPER)
(Elevation)
Reactor
CN25
CN24
CN8
CN9
CN10
CN11
CN19
CN23
CN12
CN16
CN13
Printed board(Main)
CN7
CN28
CN15
CN20
CN18
CN22
CN21
CN5
CN6
CN27
CN4
CN14
Printed board(Power)
CN3
Valve (No.1)
Valve (No.2)
Valve (No.3)
Valve (No.4)
CN1
CN2
CN17
Thermistor
Heater(Sole)
CN703
CN1
Printed board
(Remote Control)
(Remote Control)
Transformer
Printed board
(Sensor Control)
Air Pump
Valve (No.5)
Valve (No.6)
Valve (No.7)
Valve (No.8)
Perspiration Sensor
CN702
Power Switch
CNB701
Printed board
(Sensor Operation)
CNA701
CNA791
Printed board
(Pulse Sensor)
Fuse
(250V 4A)
CN701
AC
(Sensor)


Limit Switch(UPPER)
(Strength)
Volume Rotary
(Pressure)
CN904
CN903
CN902
CN931
Printed board
(Strength Pulse)
CN905
CN911
Printed board
(Elevation Pulse)
Printed board
(Massage Pulse)
CN906
CN921
Printed board
(Tapping Pulse)
CN901
Motor(Elevation)
Motor(Strength)
Motor(Massage)
Motor(Tapping)
Reclining Motor(Foot Rest)
Motor
Switch
Reclining Motor (Back Rest)
Motor
Switch
Main Harness
Limit SW(UPPER)
(Elevation)
Reactor
Transformer
CN25
CN24
CN8
CN9
CN10
CN11
CN19
CN23
CN12
CN16
CN13
Printed board(Main)
CN7
CN28
CN15
CN20
CN18
CN22
CN21
CN5
CN6
CN27
CN4
CN14
Printed board(Power)
CN3
CN1
CN2
CN17
Thermistor
Heater(Sole)
Valve (No.1)
Valve (No.2)
Valve (No.3)
Valve (No.4)
Transformer
Air Pump
Valve (No.5)
Valve (No.6)
Valve (No.7)
Valve (No.8)
Power Switch
Fuse
(250V 4A)
AC
CN703
CN1
Printed board
(Remote Control)
(Remote Control)
Printed board
(Sensor Control)
CN702
Perspiration Sensor
CNB701
Printed board
(Sensor Operation)
CNA701
CNA791
Printed board
(Pulse Sensor)
CN701
(Sensor)


compressing
decompressing
Air pump
Air tank
Exhaust
1 Solenoid (Foot shiatsu, middle)
1 Air bag (Foot shiatsu, middle)
1 Air bag (Foot shiatsu, middle)
2 Solenoid (Foot shiatsu, back and forth)
2 Air bag (Foot shiatsu, back and forth)
2 Air bag (Foot shiatsu, back and forth)
3 Solenoid (Leg shiatsu, upper)
3 Air bag (Leg shiatsu, upper)
3 Air bag (Leg shiatsu, upper)
4 Solenoid (Leg shiatsu, lower)
4 Air bag (Leg shiatsu, lower)
4 Air bag (Leg shiatsu, lower)
5 Solenoid (Leg pinching)
5 Air bag (Leg pinching)
5 Air bag (Leg pinching)
6 Solenoid (Foot pinching, outsaide)
6 Air bag (Foot pinching, outsaide)
6 Air bag (Foot pinching, outsaide)
7 Solenoid (Foot pinching, insaide)
7 Air bag (Foot pinching, insaide)
7 Air bag (Foot pinching, insaide)
8 Solenoid (Thigh, right , left)
8 Air bag (Thigh, right , left)
8 Air bag (Thigh, right , left)

Air bag position



Solenoid / Air pump position

Structure of air massaging component for lower extremites

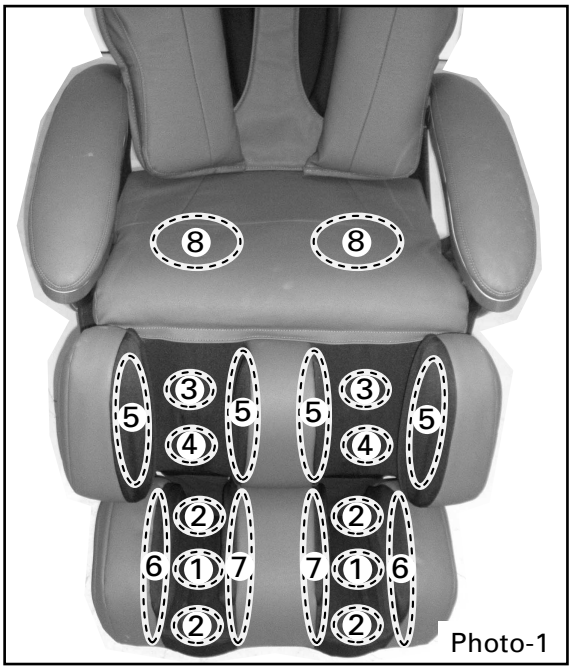


Photo-1

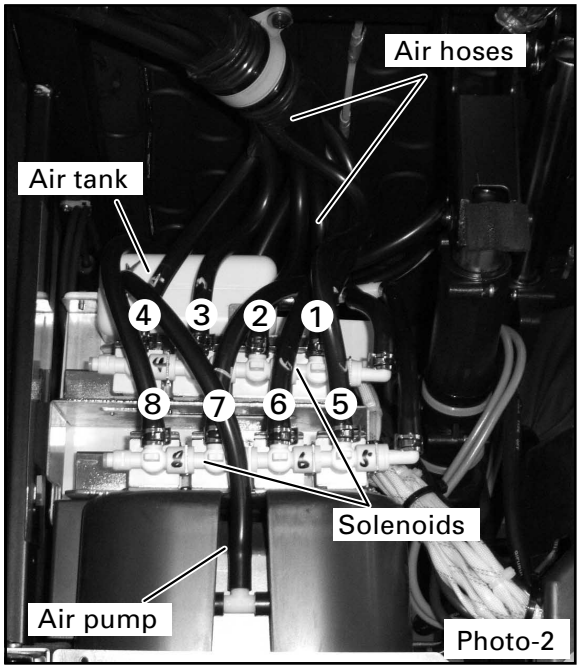
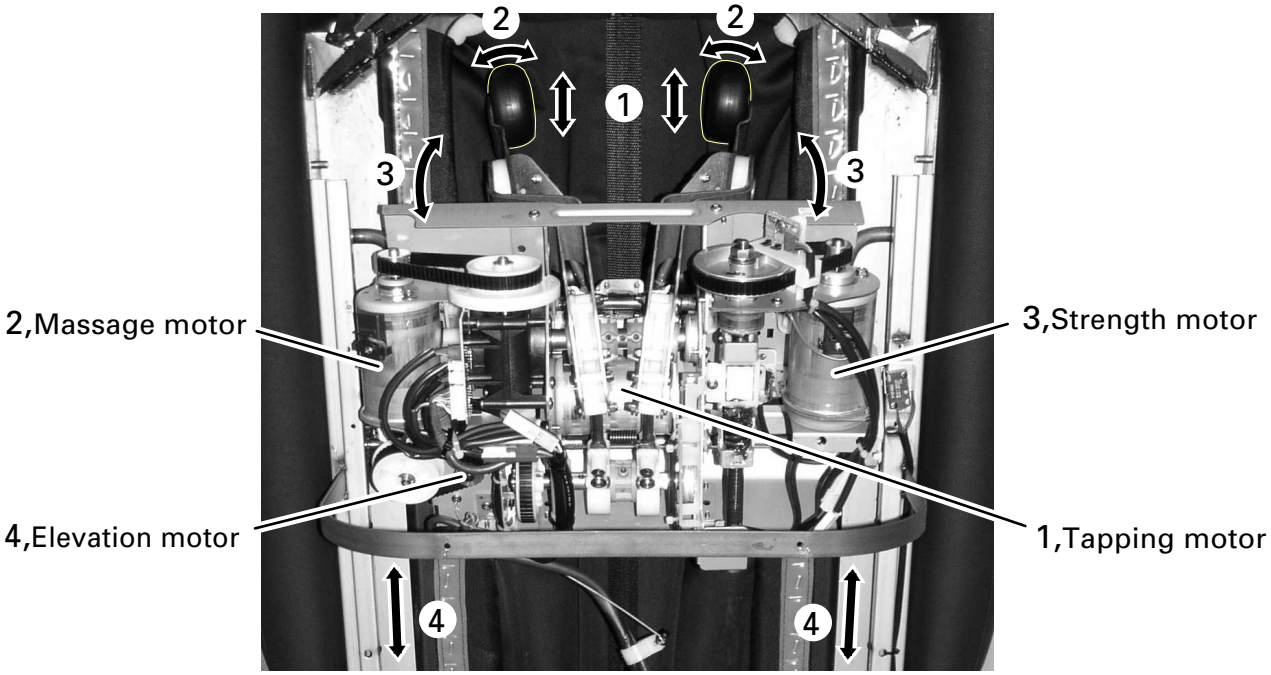


Photo-2

1, Foot shiatsu, middle
2, Foot shiatsu, back and forth
3, Leg shiatsu, upper
4, Leg shiatsu, lower
5, Leg pinching
6, Foot pinching, outsid
7, Foot pinching, insaide
8, Thigh, right, left

1. The air massager is composed of 20 air bags (photo-1) contained in an air pump, an air tank and solenoids (Photo-2), and foot and leg massaging components and of air hoses (photo-2) connecting among them, all of which are located under the seat.
2. Air pressured by means of the air pump is supplied to the individual air bags by switching among the solenoids.
3. In massaging, the process of two steps is repeated; 1) pressing and finger-pressurizing feet and legs by air bags expanded with filled air and 2) compressing the air bags by discharging air from the solenoids.



1, Tapping motor

This motor rotates to move the massage balls upward and downward alternately via the driving belt coupled to the motor.
(The motor revolutions is adjustable in three steps so that the tapping frequency can be changed over to approximately 300,390,480,540 and 600 cycles/minute.)

2, Massage motor

This motor rotates to move the massage balls crosswise via the driving belt and gear box coupled to the motor.
(The motor revolutions is adjustable in three steps so that the massaging frequency can be changed over to approximately 10,15,20,25 and 30 cycles/minute.)
(When tapping, shiatu and stretching the backbone line, the massage ball position can be changed over in three steps after starting the massagemotor.)
(Massage ball width approximately 70,85,100,115 and 130 mm.)

3, Strength motor

This motor rotates to transmit its rotating torque to the shaft screw via the driving belt, whereby the massage unit is moved forward, and backward and the massage balls is moved forward and backward.
(This motor rotates clockwise and counterclockwise to thereby move the massage unit forward and backward.)
(When tapping, massage, shiatu and stretching the backbone line, the massage unit position can be changed over in five steps after starting the strength motor.)

4, Elevation motor

This motor rotates to transmit its rotating torque to the gear of right and left of a massage unit the driving belt.
The gear is included in right and left of a back frame. It has geared with the gear of right and left of a massage unit.
This motor rotates, a gear on either side rotates and a massage unit moves up and down in the gear top of a back frame.
(This motor rotates, clockwise and counterclockwise to thereby move the massage unit move up and down.)
(When stretching the backbone line, the massage ball is moved up and down.)

Shoulder Gripping & Massaging

With the aid of a massage hand unit with a joint which moves freely like a thumb, a massaging technique called "Grip/Grasp/Massage/Knead" for gripping and massaging the muscles of shoulders has been reproduced.

This massaging technique has been reproduced by way of gripping the shoulders from above while projecting the massage hands greatly together with a massage unit at the back (maximum projection of massage hands: approx. 160mm).

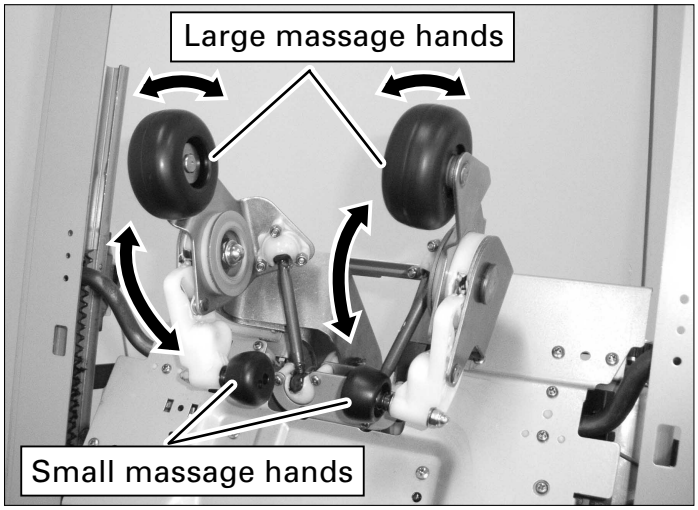
Operation of Shoulder Gripping & Massaging

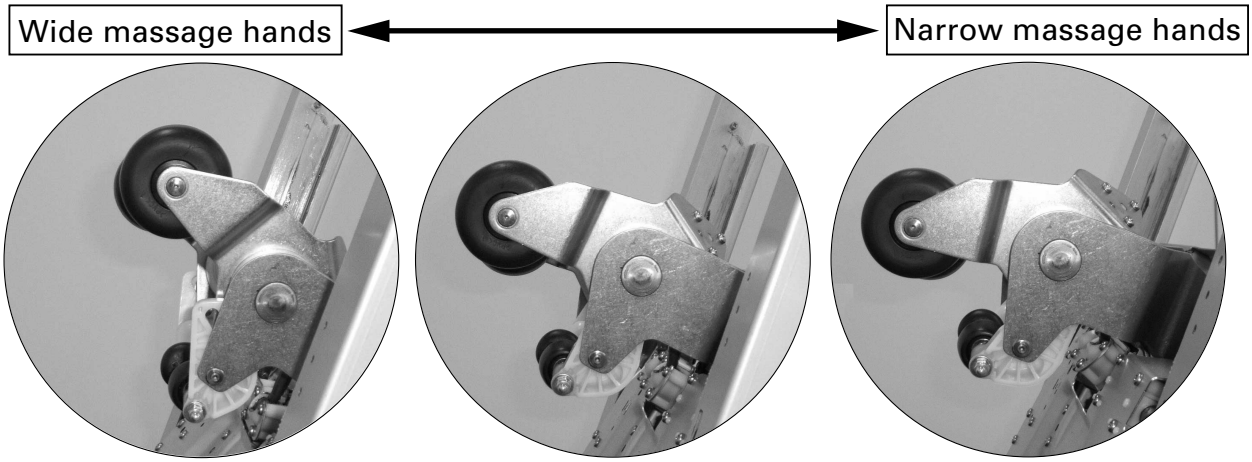
There are two large massage hands and two small massage hands at both ends of the right and left massage arms. The small massage hands have the structure to move freely.

The massage hands move from side to side according to the operation of massage motors. When the distance between the massage hands becomes narrower (the massage hands move inwards), the massage hands move so that the clearance between the large massage hands and the small massage hands becomes narrower.

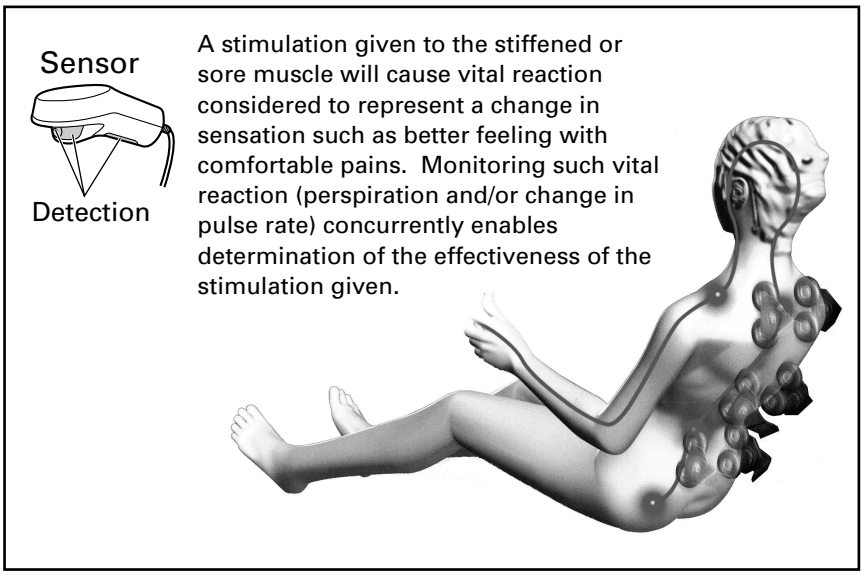
Operation of shoulder gripping and massaging: Shoulder position is first measured, and the massage hands project forward greatly only at the shoulder position and "grip and massage the shoulders".

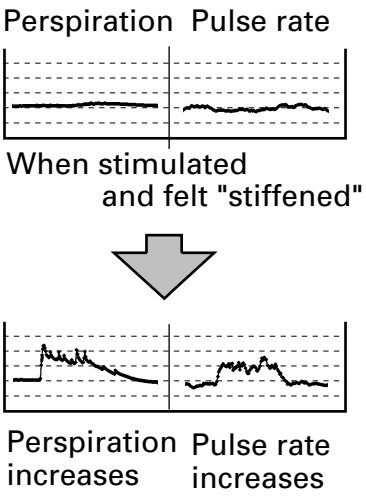
*The "shoulder gripping and massaging" function does not work on the back or the waist.

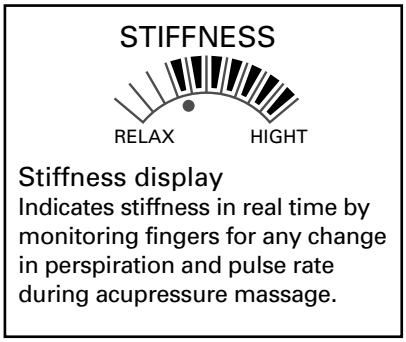




The sensor employs two types of sensors; an photo sensor and an electrical skin resistance sensor for monitoring two physiological factors (pulse rate and perspiration respectively). If stiffened position is subjected to stimulation of massage, the pulse rate and perspiration will change accordingly. The sensor monitors such change in those two factors.


Sensor
Detection
A stimulation given to the stiffened or sore muscle will cause vital reaction considered to represent a change in sensation such as better feeling with comfortable pains. Monitoring such vital reaction (perspiration and/or change in pulse rate) concurrently enables determination of the effectiveness of the stimulation given.

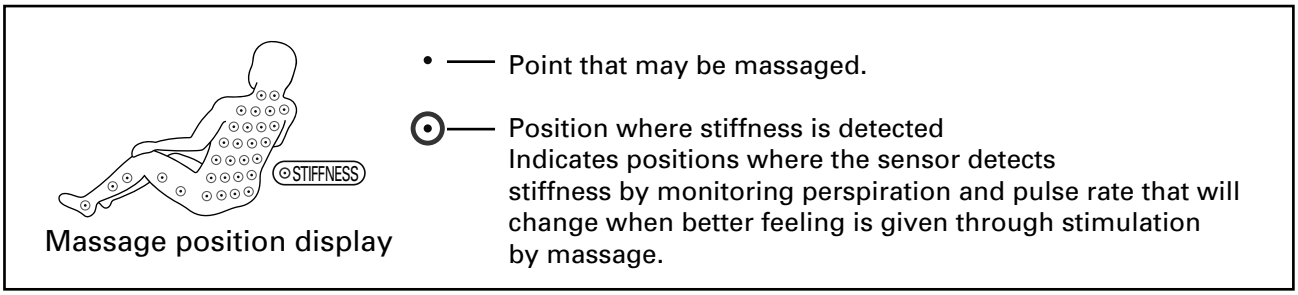



STIFFNESS
RELAX
HIGHT
Stiffness display
Indicates stiffness in real time by monitoring fingers for any change in perspiration and pulse rate during acupressure massage.

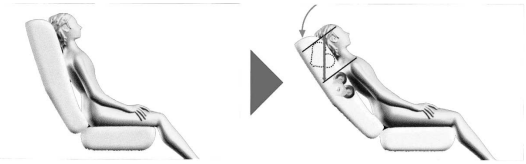
The stiffness determined by a change in perspiration and pulse rate monitored will be indicated in real time on a level meter of a remote controller.

1;When relaxed, the perspiration tends to decrease.
2;When in normal condition, each physiological parameter shows less change.
3;When felt stiffened, the perspiration as well as pulse rate tends to increase.
4;When feeling a pain, the perspiration significantly increases and the pulse rate tends to increase.

In the massage position display, the position where stiffness is detected (=the point needs to be massaged) will be displayed.


STIFFNESS
Massage position display
Point that may be massaged.
Position where stiffness is detected
Indicates positions where the sensor detects stiffness by monitoring perspiration and pulse rate that will change when better feeling is given through stimulation by massage.

Detects a pressure applied to the massasing balls for automatic adjustment to their best position.
Detects a pressure applied to the massasing balls for measuring spine curving to find out body contour and shoulder position.



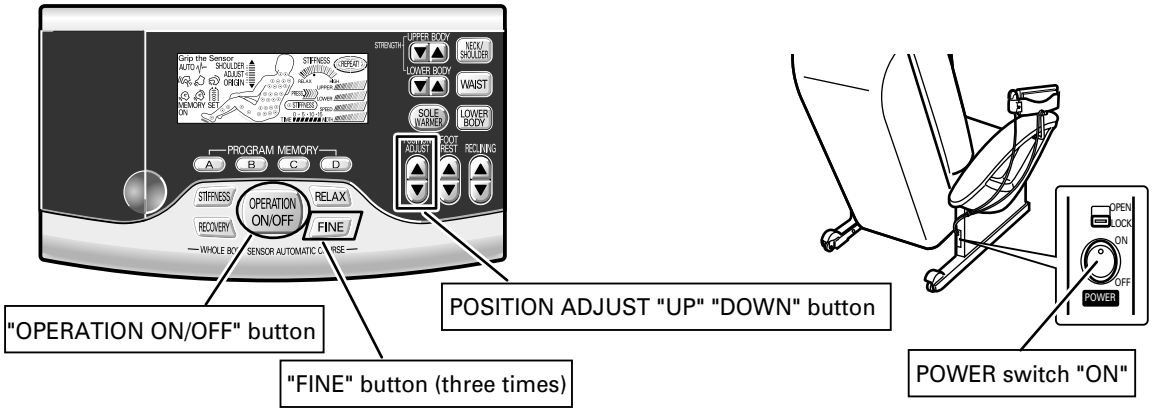
Corrects the positions automatically if the posture varies when reclining a seat.
(When the shoulder position is being adjusted, the "SHOULDER" display of the remote controller turns ON with the "UP(▲)/DOWN (▼)" display kept blinking.
Adjustment is finished when the "Shoulder Set" lamp turns ON, which will then turn OFF after the shoulder position adjustment is completed.)
Detects pressure applied to the massaging balls that depends on spine curving, and determined its body contour and shoulder position.

* Unless the massaging balls receive a body weight pressure from user for a certain time during sensor automatic course or automatic course, the operation will discontinue with the massaging balls retracted.

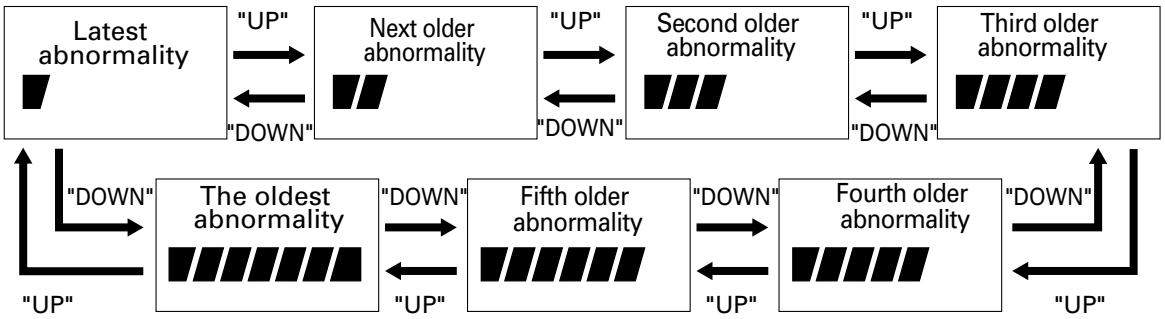
*Abnormal indications detected during operation are stored in a memory up to seven. Seven abnormal indications stored can be confirmed in the service mode (Older indications than the seven abnormal indications will be deleted sequentially).

To change over to the service mode, turn ON the POWER switch at the rear of the massager while simultaneously pressing the OPERATION ON/OFF on a remote controller.
When the "FINE" button is pressed three times with the OPERATION ON/OFF kept pressed, the massager is placed in the service mode.
(When the massager is placed in the service mode, four blue lamps at the WHOLE BODY SENSOR AUTOMATIC COURSE come on).

To reset the service mode, turn OFF the POWER switch.

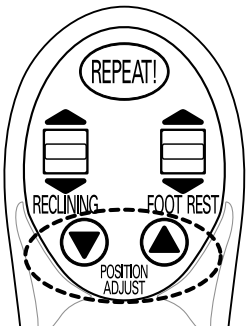


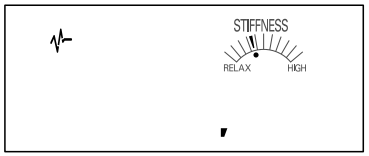
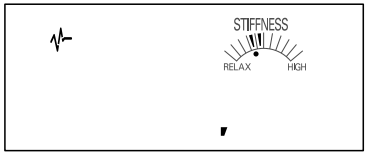
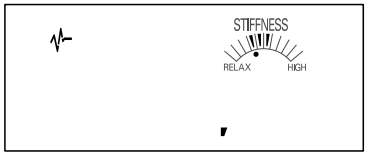
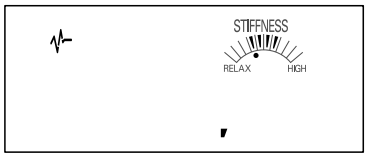
When the massager is placed in the service mode, the latest abnormal indication is displayed. The POSITION ADJUST "▲(UP)" button of the remote controller is used to display older abnormal indications one by one, and "▼(DOWN)" to display newer abnormal indication one by one (Following the sixth older (the oldest) indication, the latest indication is displayed again).
Up to seven abnormal indications are stored in a memory. In case of less than seven, since there are not any abnormal indications, some of the seven STIFFNESS indicators are lit alternatively to indicate the state that abnormalities are not stored.

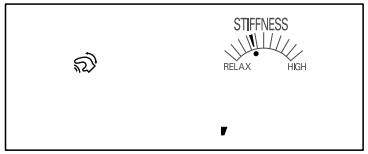
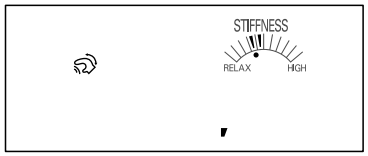
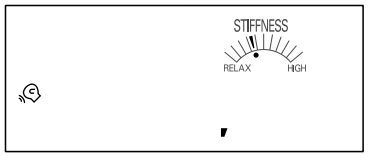


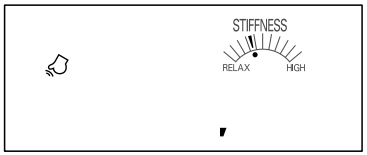
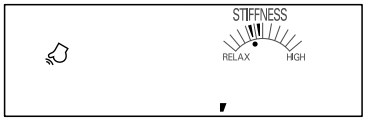
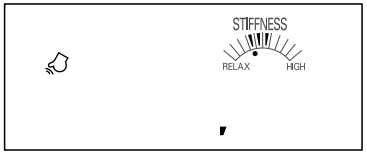
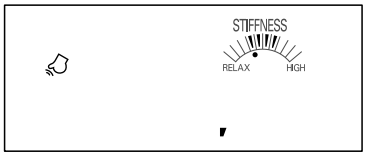
<Resetting Procedure of Abnormal Indication Memory>
Simultaneously press both POSITION ADJUST "UP" and "DOWN" buttons on the remote controller to delete all abnormal indication memory (When the seven STIFFNES indicators are all lit up, all abnormal indication memory have been deleted).

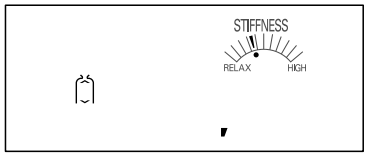
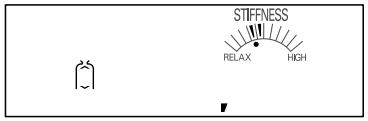
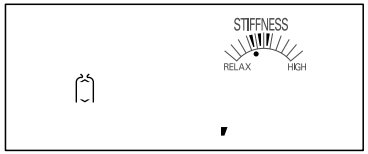
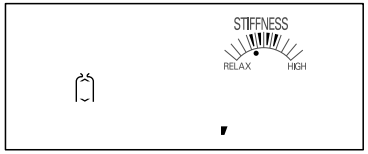
All abnormal indication memory have been deleted

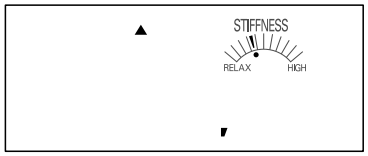
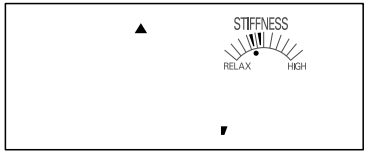
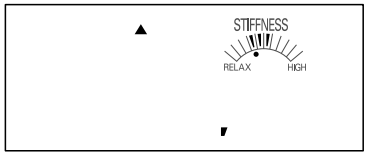
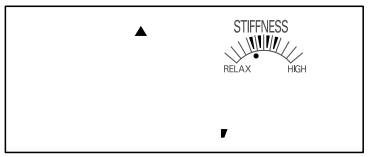


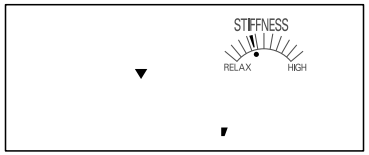
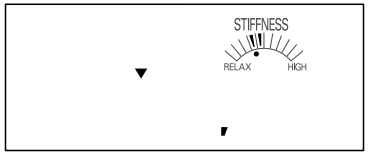
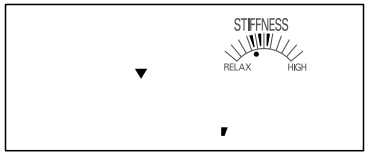
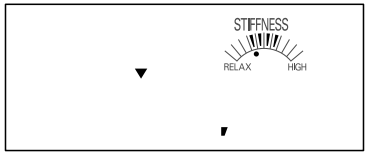
Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
POWER		Nothing is displayed after the power ON.	1. Check the current fuse for fusion. 2. Check the Printed board (Power) CN1 output (AC100V). 3. Check the Printed board (Power) CN6 output (AC100V). 4. Check the Printed board (Main) CN7 output (AC100V). 5. Check the Printed board (Main) CN16 output (approx. AC24V). 6. Check the Printed board (Main) CN21 for connector come-off. 7. Check the Printed board (Remote control) CN1 for connector come-off. 8. Check the Connector (remote control) for disconnection or shorting. 9. Others.	Replace the current fuse. Check the power switch and power cord. Check the Printed board (Power). Check the Connector (Printed board) . Replace the transfomer. Insert the connector. Insert the connector. Replace the Connector (Remote control) . Replace the Printed board (Remote control) or Printed board (Main).
REMOTE CONTROL		It displays after [remote control communication impossible] 3 seconds. (When Printed board (Main) detects)	1. The connection confirmation of Printed board (Main) CN21. 2. The connection confirmation of Printed board (Remote control) CN1. 3. Check the Connector (Remote control) for disconnection or shorting. 4. Others.	Insert the connector. Insert the connector. Replace the Connector (Remote control) . Replace the Printed board (Remote control) or Printed board (Main).
		It displays after [remote control communication impossible] 3 seconds. (When Printed board (Remote control) detects)	1. The connection confirmation of Printed board (Main) CN21. 2. The connection confirmation of Printed board (Remote control) CN1. 3. Check the Connector (Remote control) for disconnection or shorting. 4. Others.	Insert the connector. Insert the connector. Replace the Connector (Remote control) . Replace the Printed board (Remote control) or Printed board (Main).
SENSER		It displays after [sensor communication impossible] 3 seconds. (When Printed board (Main) detects)	1. The connection confirmation of Printed board (Main) CN22. 2. The connection confirmation of Printed board (Sensor) CN703. 3. Check the Connector (Sensor) cable for disconnection or shorting. 4. Others.	Insert the connector. Insert the connector. Replace the Connector (Sensor) . Replace the Printed board (Sennsor) or Printed board (Main).
		It displays after [sensor communication impossible] 3 seconds. (When Printed board (Senser) detects)	1. The connection confirmation of Printed board (Main) CN22. 2. The connection confirmation of Printed board (Sensor control) CN703. 3. Check the Connector (Sensor) cable for disconnection or shorting. 4. Others.	Insert the connector. Insert the connector. Replace the Connector (Sensor) . Replace the Printed board (Sennsor) or Printed board (Main).
		Indication does not disappear. "Grip the Sensor"	1. The connection confirmation of Printed board (Sensor)CN701, CN702.	Insert the connector.
			*Be sure to grip the sensor. *When the user's skin is gry (espeially a person with dry skin), yhe degree of stiffness may not be measured correctly. In such a case, slightly moisten with the fingers using hand cream.	

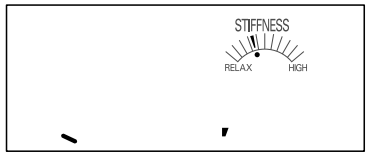
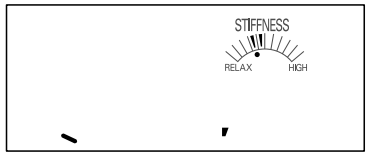
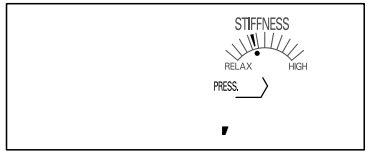
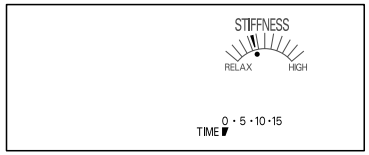
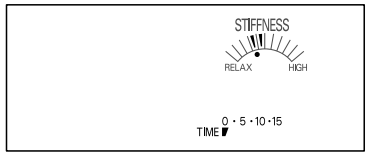
Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
MASSAGE	 *When there is not output level at sensor(IC902) for continuation 30 seconds while Massage motor are getting erectricity.	Massage mode doesn't move.	1. The connection confirmation of Printed board (Main) CN9 and the junction connector. 2. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901. 3. Check the Printed board (Main) CN9 output (approx. DC60 - 100V).	Insert the connector. Insert the connector. If output Replace the massage motor. If no output Replace the Printed board (Main).
		A stop of massaging motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901. 2. Check turning on confirmation main harness. 3. Check the magnet in a Holder (magnet width) . 4. Check the Printed board (Massage pulse) IC902 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Massage pulse).
		Massage motor rotation.	1. Check the massage motor belt for dislocation and cut-off.	The massage motor belt correction, the exchange.
	 *When there is no output at sensor (IC902) for continuation 15 seconds while Massage motor are getting erectricity.	Massage mode doesn't move.	1. The connection confirmation of Printed board (Main) CN9 and the junction connector. 2. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901. 3. Check the Printed board (Main) CN7 output (approx. DC60 - 100V).	Insert the connector. Insert the connector. If output Replace the massage motor. If no output Replace the Printed board (Main).
		A stop of massaging motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901. 2. Check turning on confirmation main harness. 3. Check the magnet in a pulley (massage) . 4. Check the Printed board (Massage pulse) IC901 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Massage pulse).
		Massage motor rotation.	1. Check the massage motor belt for dislocation and cut-off.	The massage motor belt correction, the exchange.
TAPPING	 *When there is no output at sensor (IC921) for continuation 15 seconds while tapping motor are getting erectricity.	Tapping mode doesn't move.	1. The connection confirmation of Printed board (Main) CN8 and the junction connector. 2. Check the Printed board (Main) CN8 output (approx. DC60 - 100V).	Insert the connector. If output Replace the tapping motor. If no output Replace the Printed board (Main).
		A stop of tapping motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN906. 2. Check turning on confirmation main harness. 3. The magnet check for the tapping detection. 4. Check the Printed board (Tapping pulse) IC921 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Tapping pulse).
		Tapping motor rotation.	1. Check the tapping motor belt for dislocation and cut-off.	The tapping motor belt correction, the exchange.

Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
STRENGTH	 When there is no detection of lower limit position for continuation 15 seconds while strength motor are moving downward way.	A stop of strength motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN902. The connection confirmation of Printed board (Strength pulse) CN931. 2. Check turning on confirmation main harness. 3. The magnet check for the strength detection. 4. Check the Printed board (Strength pulse) IC931, IC932 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Strength pulse).
		Strength motor rotation.	1. Check the strength motor belt for dislocation and cut-off.	The elevation motor belt correction, the exchange.
	 When there is no detection of upper limit position for continuation 15 seconds while strength motor are moving upper ward way.	A stop of strength motion can not be carried out.	1. The connection confirmation of Printed board (Massage pulse) CN904 2. Check the limit switch(strength). 3. Others.	Insert the connector. Replace the switch(strength). Replace the Printed board (Main).
		Strength motor rotation.	1. Check the strength motor belt for dislocation and cut-off.	The strength motor belt correction, the exchange.
	 When there is not output level at sensor for continuation 15 seconds while strength motor are getting erectricity.	A stop of strength motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN902. The connection confirmation of Printed board (Strength pulse) CN931. 2. Check turning on confirmation main harness. 3. The magnet check for the strength detection. 4. Check the Printed board (Strength pulse) IC931, IC932 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Strength pulse).
		Strength motor rotation.	1. Check the strength motor belt for dislocation and cut-off.	The strength motor belt correction, the exchange.
	 When there is not output level at sensor for continuation 15 seconds while strength motor are getting erectricity.	Strength mode doesn't move.	1. The connection confirmation of Printed board (Main) CN10 and the junction connector. 2. Check the Printed board (Main) CN10 output (approx. DC60 - 100V).	Insert the connector. If output Replace the strength motor. If no output Replace the Printed board (Main).
		A stop of strength motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN902. The connection confirmation of Printed board (Strength pulse) CN931. 2. Check turning on confirmation main harness. 3. The magnet check for the strength detection. 4. Check the Printed board (Strength pulse) IC931, IC932 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Strength pulse).
		Strength motor rotation.	1. Check the strength motor belt for dislocation and cut-off.	The strength motor belt correction, the exchange.

Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
ELEVATION	 When there is no detection of lower limit position for continuation 30 seconds while elevation motor are moving downward way.	A stop of elevation motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN905. The connection confirmation of Printed board (Elevation pulse) CN911. 2. Check turning on confirmation main harness. 3. The magnet check for the elevation detection. 4. Check the Printed board (Elevation pulse) IC912 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Elevation pulse).
		Elevation motor rotation.	1. Check the elevation motor belt for dislocation and cut-off.	The elevation motor belt correction, the exchange.
	 When there is no detection of upper limit position for continuation 30 seconds while elevation motor are moving upper ward way.	A stop of elevation motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN23 2. Check the limit switch(elevation). 3. Others.	Insert the connector. Replace the switch(elevation). Replace the Printed board (Main).
		Elevation motor rotation.	1. Check the elevation motor belt for dislocation and cut-off.	The elevation motor belt correction, the exchange.
	 When there is not output level at sensor(IC912) for continuation 30 seconds while elevation motor are getting erectricity.	A stop of elevation motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN905. The connection confirmation of Printed board (Elevation pulse) CN911. 2. Check turning on confirmation main harness. 3. The magnet check for the elevation detection. 4. Check the Printed board (Elevation pulse) IC912 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Elevation pulse).
		Elevation motor rotation.	1. Check the elevation motor belt for dislocation and cut-off.	The elevation motor belt correction, the exchange.
	 When there is not output level at sensor(IC911) for continuation 30 seconds while elevation motor are getting erectricity.	Elevation mode doesn't move.	1. The connection confirmation of Printed board (Main) CN11 and the junction connector. 2. Check the Printed board (Main) CN11 output (approx. DC60 - 100V).	Insert the connector. If output Replace the elevation motor. If no output Replace the Printed board (Main).
		A stop of elevation motion can not be carried out.	1. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN905. The connection confirmation of Printed board (Elevation pulse) CN911. 2. Check turning on confirmation main harness. 3. The magnet check for the elevation detection. 4. Check the Printed board (Elevation pulse) IC911 for inclination.	Insert the connector. Replace the main harness. The magnet position correction for the detection. Correct the tilted condition or replace the Printed board (Elevation pulse).
		Elevation motor rotation.	1. Check the elevation motor belt for dislocation and cut-off.	The elevation motor belt correction, the exchange.

Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
RECLINING BACK REST	 When there is no detection of reclining switch(upper limit) at the back part for continuation 1 minutes while reclining motor are moving for raising seat.	The back rest reclining motion doesn't move. (Don't up)	1. The connection confirmation of Printed board (Power) CN4. 2. Check the Printed board (Power) CN4 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (back rest). If no output Replace the Printed board (Power).
		A back rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN24. 2. Check the back rest reclining upper limit switch. 3. Others.	Insert the connector. Replace the reclining motor (back rest). Replace the Printed board (Main).
	 When there is no detection of reclining switch(lower limit) at the back part for continuation 1 minutes while reclining motor are moving for lower seat.	The back rest reclining motion doesn't move. (Don't down)	1. The connection confirmation of Printed board (Power) CN4. 2. Check the Printed board (Power) CN4 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (back rest). If no output Replace the Printed board (Power).
		A back rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN24. 2. Check the back rest reclining lower limit switch. 3. Others.	Insert the connector. Replace the reclining motor (back rest). Replace the Printed board (Main).
	 When there is detection of reclining switch(upper limit) at the back part for continuation 1 minutes while reclining motor are moving for lower seat.	The back rest reclining motion doesn't move. (Don't down)	1. The connection confirmation of Printed board (Power) CN4. 2. Check the Printed board (Power) CN4 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (back rest). If no output Replace the Printed board (Power).
		A back rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN24. 2. Check the back rest reclining upper limit switch. 3. Others.	Insert the connector. Replace the reclining motor (back rest). Replace the Printed board (Main).
	 When there is detection of reclining switch(lower limit) at the back part for continuation 1 minutes while reclining motor are moving for raising seat.	The back rest reclining motion doesn't move. (Don't up)	1. The connection confirmation of Printed board (Power) CN4. 2. Check the Printed board (Power) CN4 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (back rest). If no output Replace the Printed board (Power).
		A back rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN24. 2. Check the back rest reclining lower limit switch. 3. Others.	Insert the connector. Replace the reclining motor (back rest). Replace the Printed board (Main).

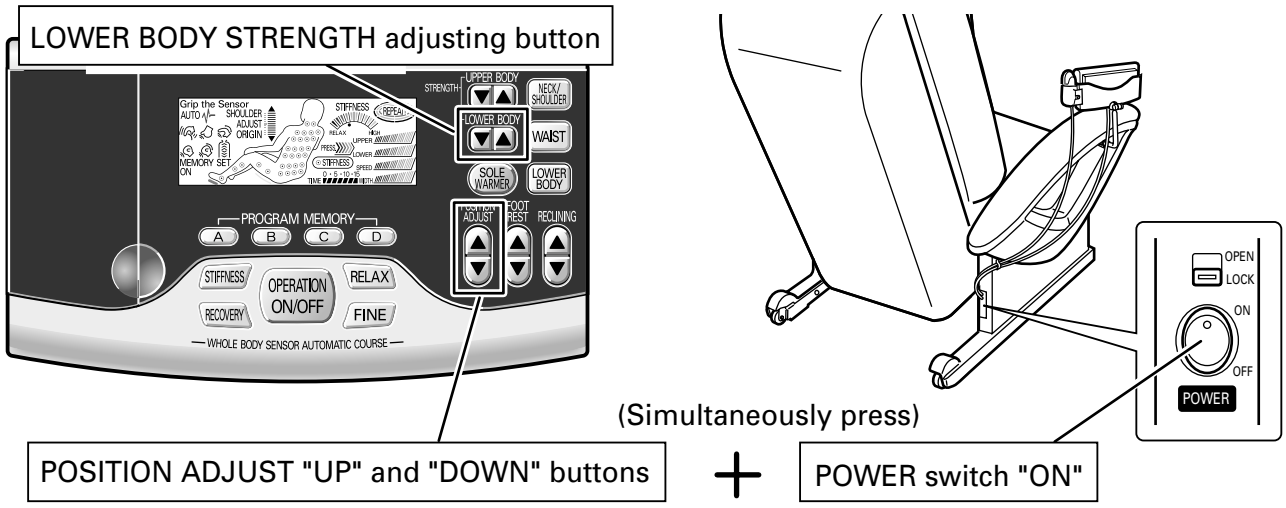
Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
RECLINING FOOT REST	 When there is no detection of reclining switch(upper limit) at the foot part for continuation 1 minutes while reclining motor are moving for raising seat.	The foot rest reclining motion doesn't move. (Don't up)	1. The connection confirmation of Printed board (Power) CN5. 2. Check the Printed board (Power) CN5 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (foot rest). If no output Replace the Printed board (Power).
		A foot rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN25. 2. Check the foot rest reclining upper limit switch. 3. Others.	Insert the connector. Replace the reclining motor (foot rest). Replace the Printed board (Main).
	 When there is no detection of reclining switch(lower limit) at the foot part for continuation 1 minutes while reclining motor are moving for lower seat.	The foot rest reclining motion doesn't move. (Don't down)	1. The connection confirmation of Printed board (Power) CN5. 2. Check the Printed board (Power) CN5 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (foot rest). If no output Replace the Printed board (Power).
		A foot rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN25. 2. Check the foot rest reclining lower limit switch. 3. Others.	Insert the connector. Replace the reclining motor (foot rest). Replace the Printed board (Main).
	 When there is detection of reclining switch(upper limit) at the foot part for continuation 1 minutes while reclining motor are moving for lower seat.	The foot rest reclining motion doesn't move. (Don't down)	1. The connection confirmation of Printed board (Power) CN5. 2. Check the Printed board (Power) CN5 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (foot rest). If no output Replace the Printed board (Power).
		A foot rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN25. 2. Check the foot rest reclining upper limit switch. 3. Others.	Insert the connector. Replace the reclining motor (foot rest). Replace the Printed board (Main).
	 When there is detection of reclining switch(lower limit) at the foot part for continuation 1 minutes while reclining motor are moving for raising seat.	The foot rest reclining motion doesn't move. (Don't up)	1. The connection confirmation of Printed board (Power) CN5. 2. Check the Printed board (Power) CN5 output (approx. DC100V).	Insert the connector. If output Replace the reclining motor (foot rest). If no output Replace the Printed board (Power).
		A foot rest lilacinning operation stop is not carried out.	1. The connection confirmation of Printed board (Main) CN25. 2. Check the foot rest reclining lower limit switch. 3. Others.	Insert the connector. Replace the reclining motor (foot rest). Replace the Printed board (Main).

Troubled portion	Error message	Troubled phenomenon	Check item	Counteraction method
HERTER		When there is thermistor output of continuation 2 second and more then 4.9V.	1. The connection confirmation of Printed board (Main) CN20. 2. Check the Connector ass'y (heater) for disconnection. 3. Check the Thermistor for disconnection. 4. Others.	Insert the connector. Replace the Connector ass'y (heater). Replace the heater(sole). Replace the Printed board (main).
		When there is thermistor output of continuation 2 second and less then 0.1V.	1. The connection confirmation of Printed board (Main) CN20. 2. Check the Connector ass'y (heater) for shorting. 3. Check the Thermistor for shorting. 4. Others.	Insert the connector. Replace the Connector ass'y (heater). Replace the heater(sole). Replace the Printed board (main).
PRESSURE SENSOR		When there is pressure sensor output of Continuation 3 second and less then 0.1V.	1. Check the volume rotary (pressure) . (CN903 red-black approx. 10kΩ /red-white approx. 250Ω - 10kΩ) 2. The connection confirmation of Printed board (Main) CN19 and Printed board (Massage pulse) CN901 and CN903. 8. Check the main harness for disconnection or shorting. 4. Others.	Replace the volume rotary (pressure). Insert the connector. Replace the main harness. Replace the Printed board (main).
OTHERS		An abnormal power supply.	1. Check the power supply of an power point. 2. Others.	Replace the Printed board (main).
		An abnormal power supply.	1. Check the power supply of an power point. 2. Others.	Replace the Printed board (main).

Start-up of Examination Mode

Turn ON the POWER switch at the rear of the massager while simultaneously pressing the POSITION ADJUST "UP" and "DOWN" buttons on the remote controller (This operation should be started with the POWER switch turned OFF).

When the examination mode is started up, both a backrest and a foot rest move slightly and come to a stop.

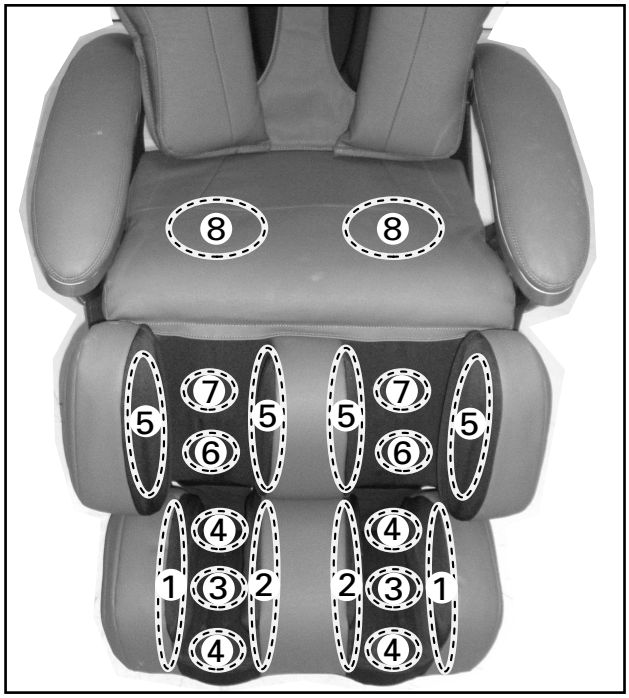


Air-Bag Operation Confirmation

Press either "WEAK" or "STRONG" button of the LOWER BODY STRENGTH adjustment on the remote controller.

Check if the air-bag inflates sequentially as shown below.

* If there are any problems, check air leakage, breakage of air hoses, and the air-bag.



1, Foot pinching, outside

2, Foot pinching, inside

3, Foot shiatsu, middle

4, Foot shiatsu, back and forth

5, Leg pinching, inside, outside

6, Leg shiatsu, lower

7, Leg shiatsu, upper

8, Thigh, right, left

(1) Replacement of PCBs (main) & (power)

1, Take off four thread caps on an arm rest (left). Photo-1

2, Remove four set screws on the elbow rest and take off the arm rest (left). Photo-1

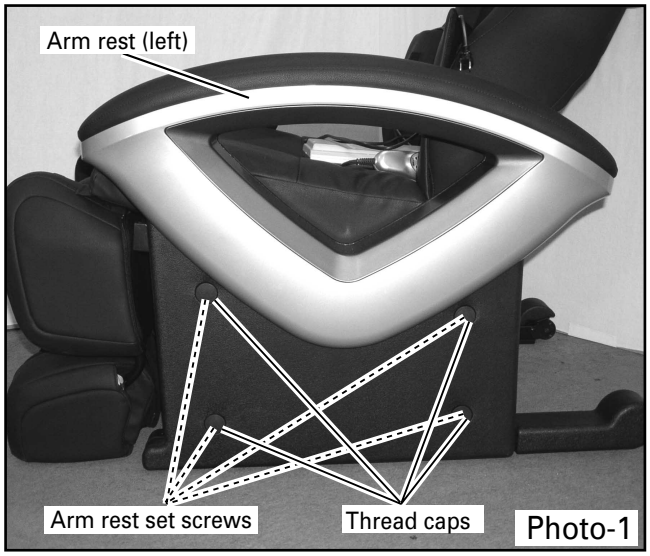


Photo-1

3, Lift up a foot rest and insert a screwdriver and so forth into a link to fix the link. Photo-2

4, Remove four cover (under front) set screws and take off the cover (under front). Photo-2

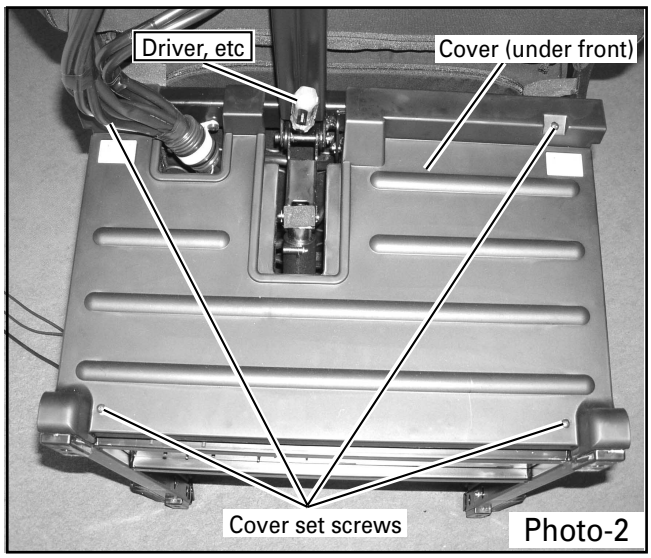


Photo-2

5, Remove two cover (PCB) set screws and take off latches of ribs at the rear of the cover. Photo-3

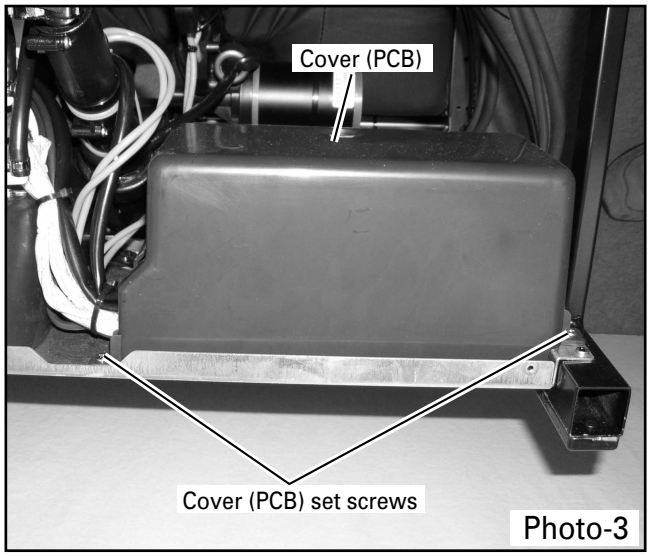


Photo-3

6, Disconnect connectors connected to the PCB (power). Photo-4

7, Unfix seven stoppers (PCB) and take off the PCB (power). Photo-4

8, Remove three stay (PCB) set screws and take off the stay (PCB). Photo-4

* There is a set screw around under a reclining motor at the left side.

9, Disconnect the connectors connected to the PCB (main). Photo-4

10, Unfix nine stoppers (PCB) from the bottom side of the massager and take off the PCB (main). Photo-4

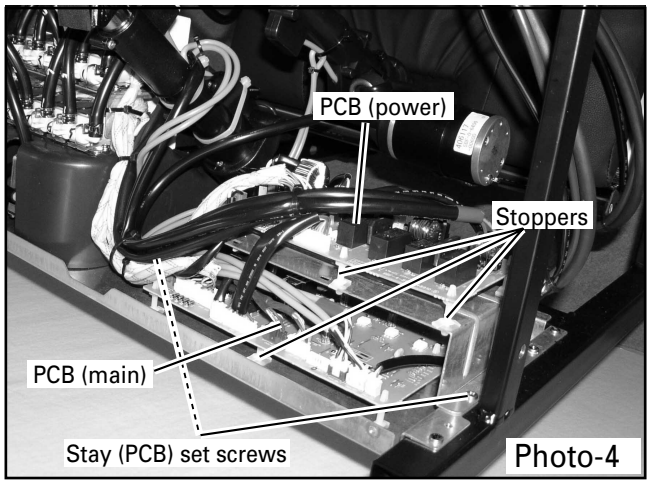


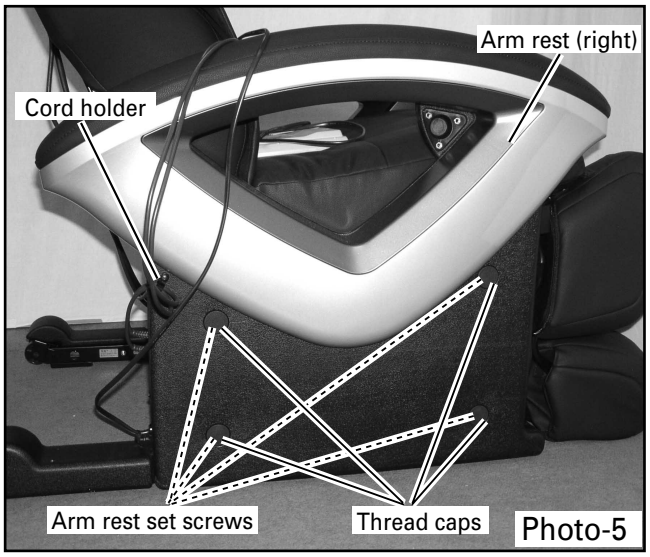
Photo-4

(2) Replacement of Solenoid

1, Remove one cord holder set screw and unfix two remote controller cords.
Photo-5

2, Take off four thread caps on the arm rest (right). Photo-5

3, Remove four elbow rest set screws and take off the arm rest (right). Photo-5



4, Disconnect each air hose.

> * When taking off the air hoses, indicate a mark such as number, symbol (Exercise care so as not to make a mistake in connecting the hoses).

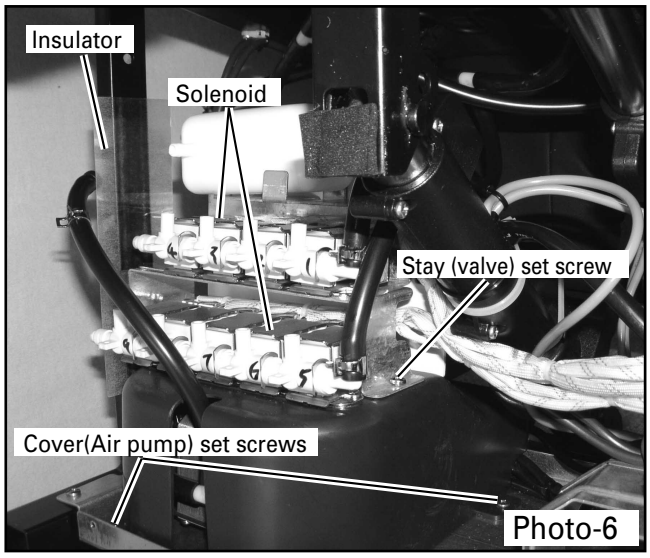
5, Remove the cord processing of a solenoid (upper step). Photo-6

6, Remove two solenoid (upper step) set screws and take off the solenoid (upper step).
Photo-6

7, Remove two stay (valve) set screws and take off the stay (valve).
* There are screws behind an insulator on the left side surface. Photo-6

8, Remove the cord processing of a solenoid (lower step). Photo-6

9, Remove two solenoid (lower step) set screws and take off the solenoid (lower step).
Photo-6



(3) Replacement of Air Pump, Transformer Reactor

1, Remove two cover(air pump) set screws and take off the cover(air pump). Photo-6

2, Take off the cord processing of an air pump.

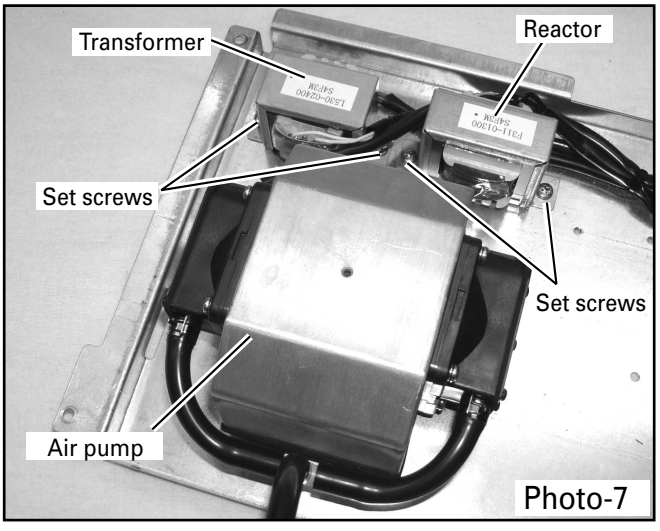
3, Remove four fixing rubbers of the air pump and take off the air pump. Photo-7

4, Take off the cord processing of a transformer.

5, Remove two transformer set screws and take off the transformer. Photo-7

6, Take off the cord processing of a reactor.

7, Remove two reactor set screws and take off the reactor. Photo-7



(4) Replacement of Reclining Motor

1, Take off the arm rest (left). Photo-1
2, Take off the arm rest (right). Photo-5
3, Disconnect each cord processing and cords.
4, Lay down the massager with its left side facing downward. Photo-8

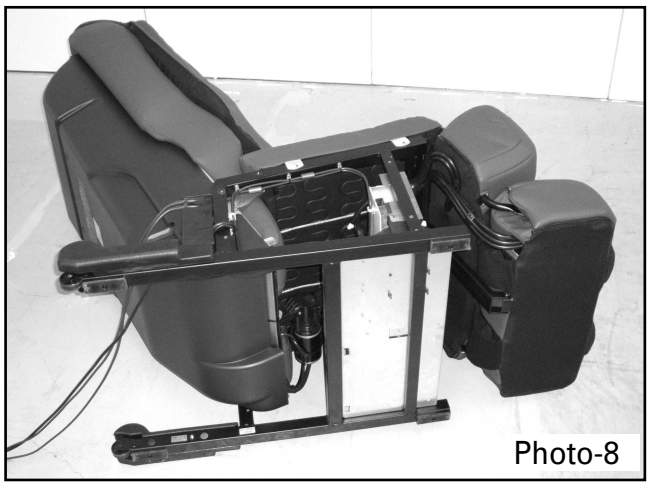
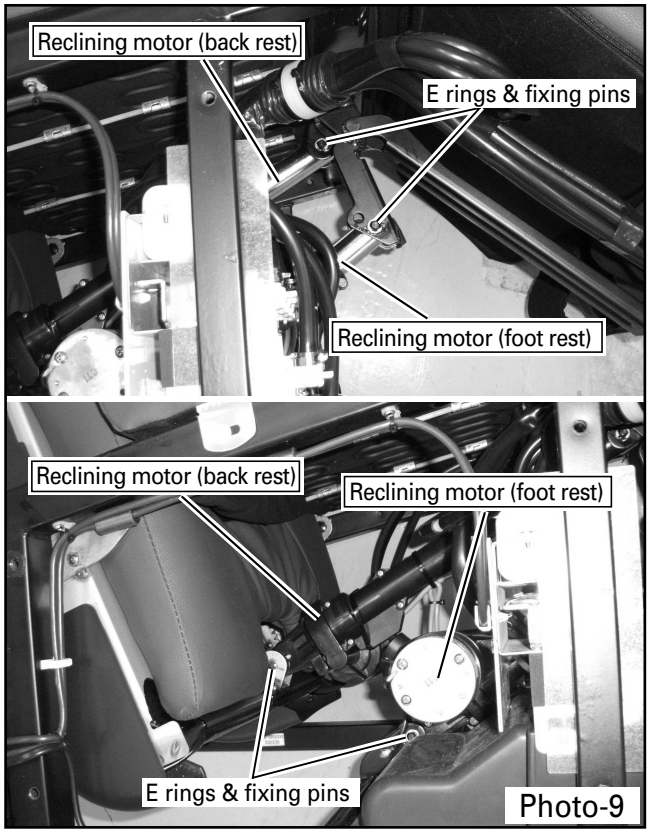


Photo-8

5, Each reclining motor (set) is fixed at two places on both ends. Therefore, remove E rings on both ends and pull out fixing pins. Photo-9


Reclining motor (back rest)
E rings & fixing pins
Reclining motor (foot rest)
Reclining motor (back rest)
Reclining motor (foot rest)
E rings & fixing pins
Photo-9

(5) Replacement of Power Switch and Current Fuse

1, Take off the arm rest (right). Photo-5
2, Remove each cord processing and disconnect the cords.
3, Remove two case (switch box) set screws and take off the case (switch box). Photo-10

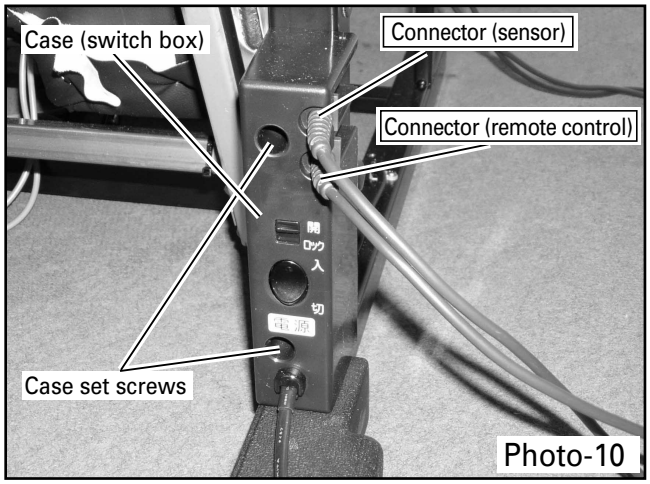


Photo-10

4, Open a fuse case of current fuses and take out a current fuse. Photo-11
5, Remove two switch holder set screws and take off a switch holder. Photo-11
6, Remove a switch fixing screw and take off the POWER switch. Photo-11

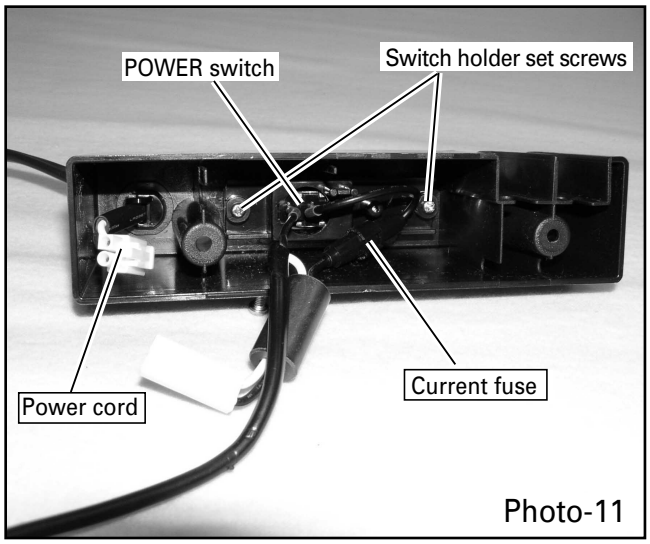


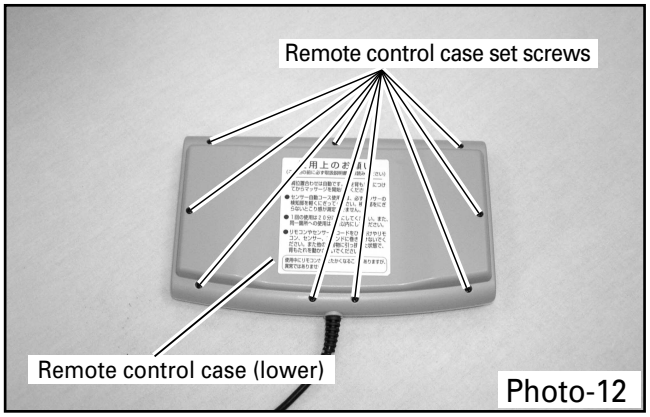
Photo-11

(6) Replacement of Remote Control

1, Remove each cord processing and disconnect the cords.

2, Remove nine remote control case set screws and take off a remote control case (lower).

Photo-12

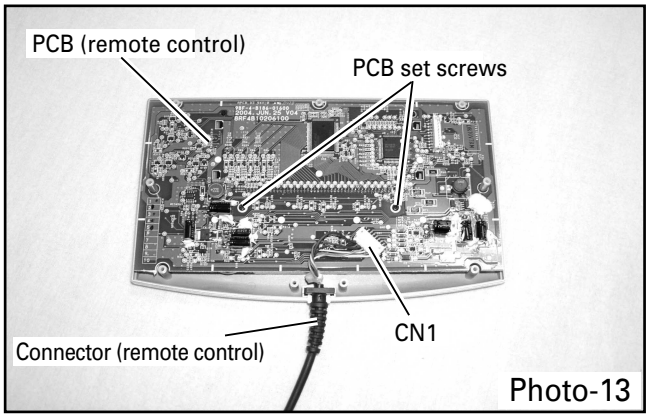


3, Remove two PCB (remote control) set screws and take off the PCB (remote control)

Photo-13

4, Disconnect the interconnecting connector CN1 of the connector (remote control).

Photo-13

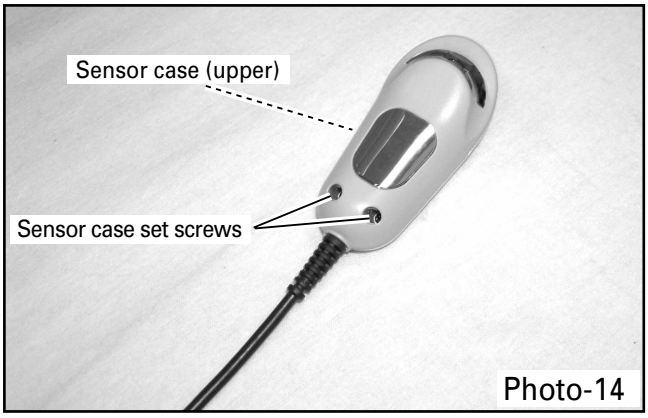


(7) Replacement of Sensor

1, Remove each cord processing and disconnect the cords.

2, Remove two sensor case set screws and take off a sensor case (upper).

Photo-14

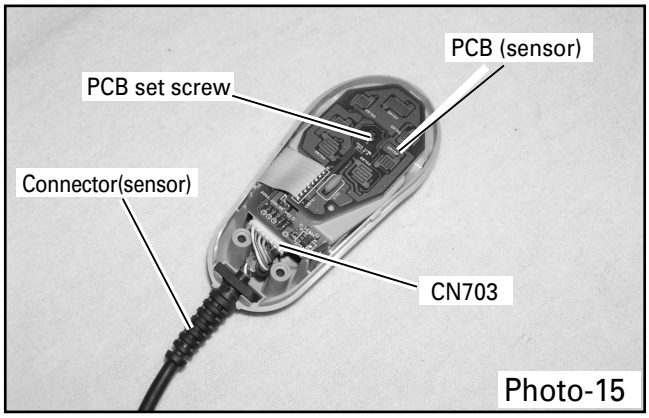


3, Remove one PCB (sensor) set screw and take off the PCB (sensor).

Photo-15

4, Disconnect the interconnecting connector CN703 of the connector (sensor).

Photo-15



(8) How to Remove A Massage Unit

1, Remove four cover(back cover) set screws and take off a cover(back cover). Photo-16

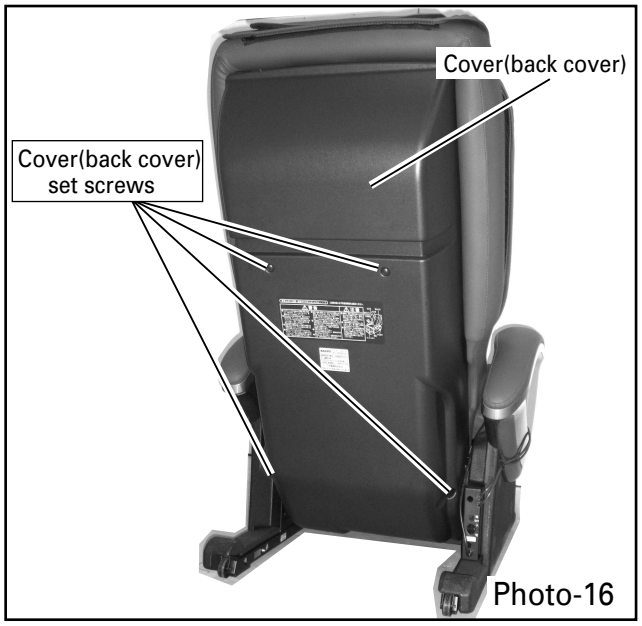


Photo-16

2, Move the massage unit upwards to its top position. Usually the massage unit is at a stop at its top position. When the massage unit is at a stop halfway, however, turn on the power and make the massage unit move up to its top position. At the top position, when the massage unit comes to a stop, pull out a POWER plug. Photo-17

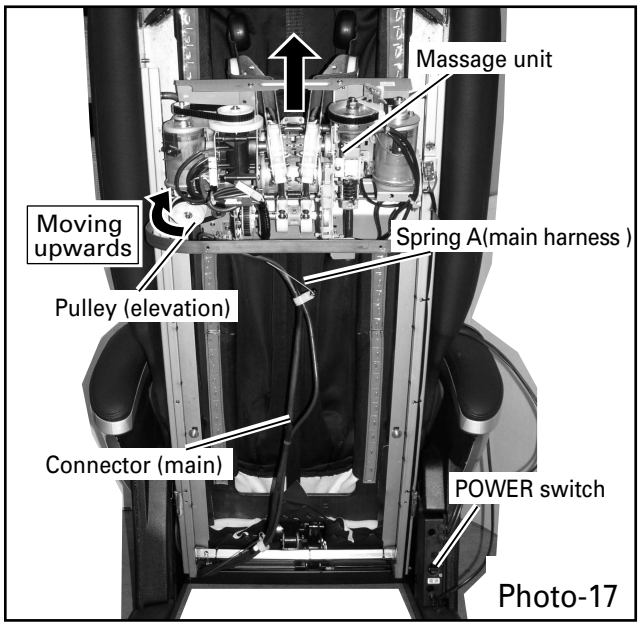


Photo-17

* While the massage unit is moving upwards, exercise care so as not to come into contact with the operating portion.

If the massage unit does not move upwards when the power is turned on, turn a pulley (elevation) clockwise to move the massage unit to the top position. Photo-17

3, Remove the cord processing of the cord (main) and disconnect the connectors (four connectors for motors, one for signal line). Photo-18
Remove one earthing set screw and cut eight insulation lock black cords.

* Cut the cords with a nipper so that the cords do not get scratched.
* In order to restore the wiring processing after reassembling the massage unit, indicate a markon the cords before disconnecting the wiring.

4, Remove one spring A (harness main) set screw and take off a spring A (harness main). Photo-18

5, Remove two screws(stopper) inside of a back frame. Photo-18

6, Turn the pulley (massage) clockwise to minimize the massage hand width. Photo-18

7, Turn the pulley (strength) counterclockwise to bring to minimum position (maximum strength) of a thread bar. Photo-18

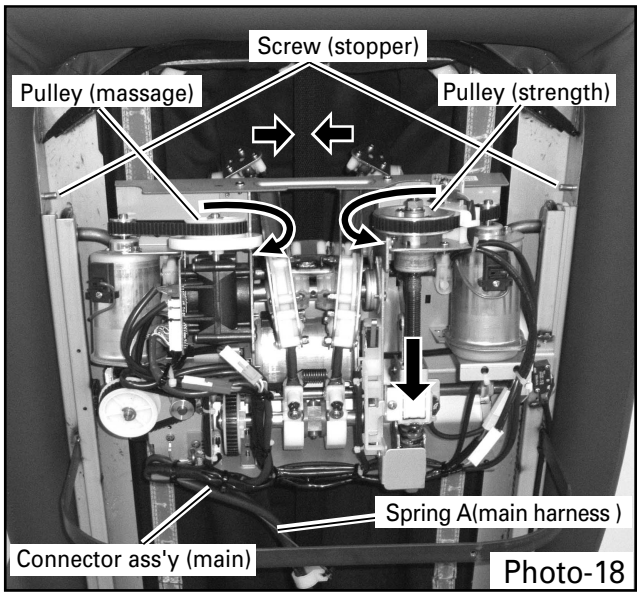


Photo-18

8, Turn the pulley (evevation) clockwise, move the massage unit upwards, and take off a driving wheel from a back frame guide.

Photo-19

* When taking off the driving wheel, hold the massage unit firmly.

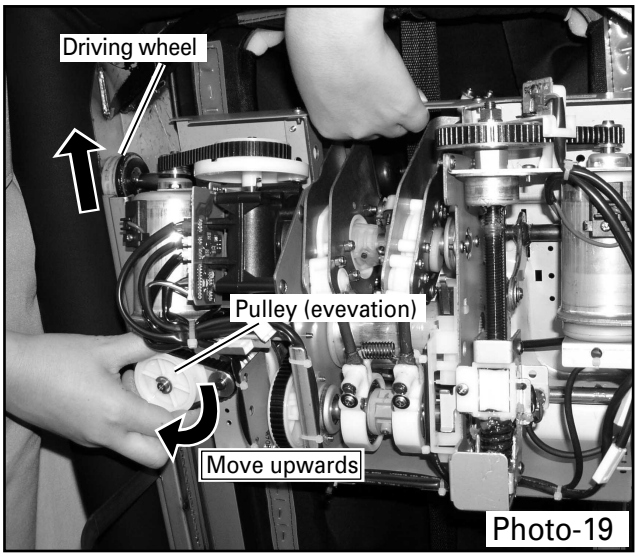


Photo-19

9, With a guide roller removed, further turn the pulley (evevation) clockwise.

Photo-20

10, When right and left gears are disengaged from the back frame gears (rack), take off the massage unit from the massager body.

Photo-20

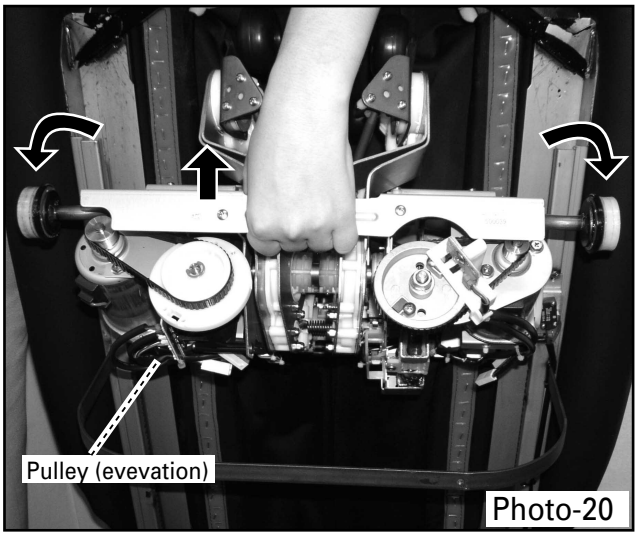


Photo-20

(9) How to Reassemble the Massage Unit

1, Tape a lever of a micro switch.

For the purpose of preventing the lever of the micro switch from being deformed or damaged by incidentally hitting it when installing the massage unit.

* After installing the massage unit, peel the tape.

Photo-21

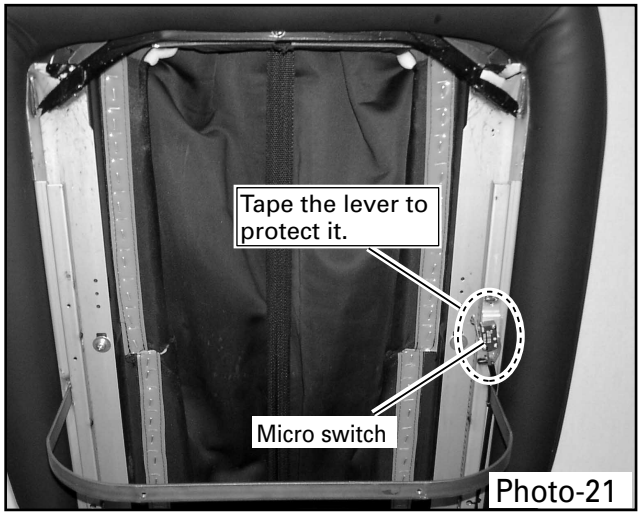


Photo-21

2, Before fitting the massage unit into the massager body, minimize massage hand width by turning the pulley (massage) clockwise.

Turn the pulley (strength) counterclockwise to bring to minimum position (maximum strength) of a thread bar.

Photo-22

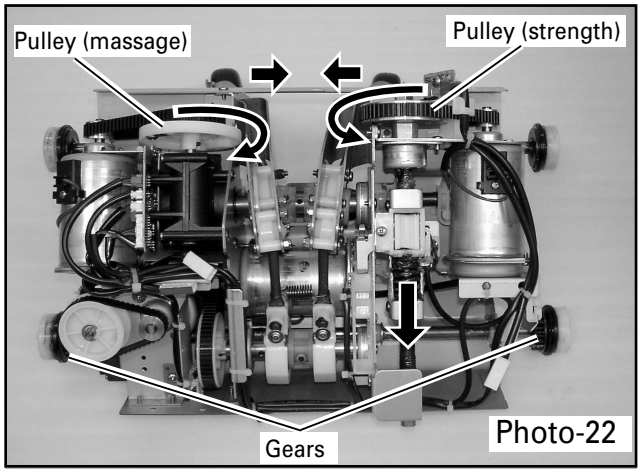


Photo-22

3, Fit the massage unit in parallel so that the first right and left gear (rack) teeth engage with the right and left gears of the massage unit simultaneously.

Photo-22

(10) Replacement of PCB (strength pulse)

1, Disconnect the connector CN931 of the PCB (strength pulse). Photo-23

2, Remove one PCB (strength pulse) set screw and take off the PCB (strength pulse). Photo-23

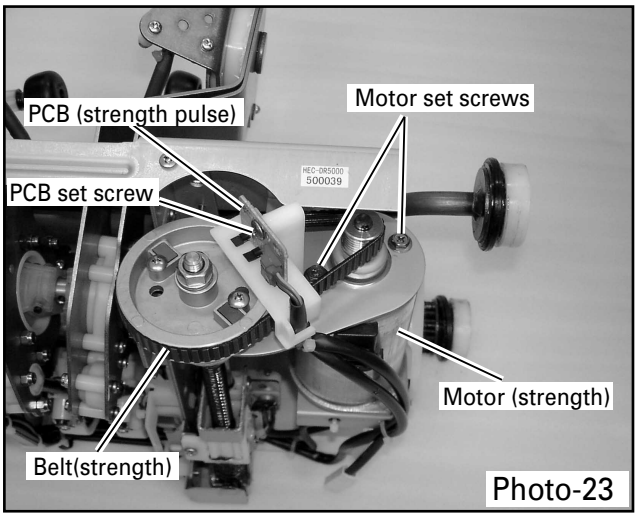


Photo-23

(11) Replacement of Motor (strength)

1, Remove each cord processing.

2, Remove two stay (under the motor (strength)) set screws. Photo-24

3, Disconnect the belt (strength). Photo-23

4, Remove two motor (strength) set screws and take off the motor (strength) and the stay (under the motor (strength)). Photo-23, 24

5, Remove two motor (strength) set screws and take off the motor (strength).

* Exercise care so as not to adhere grease to the driving portions such as belt (Failure to observe this precaution may lead to malfunction due to slippage).

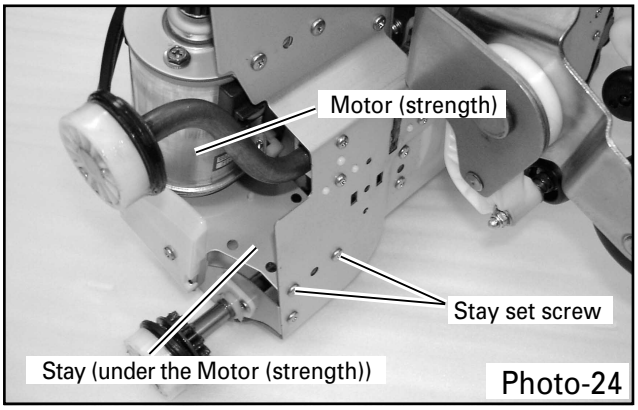


Photo-24

(12) Replacement of PCB (Massage)

1, Disconnect five PCB (massage) connectors. Photo-25

2, Remove two PCB (massage) set screws and take off the PCB (massage). Photo-25

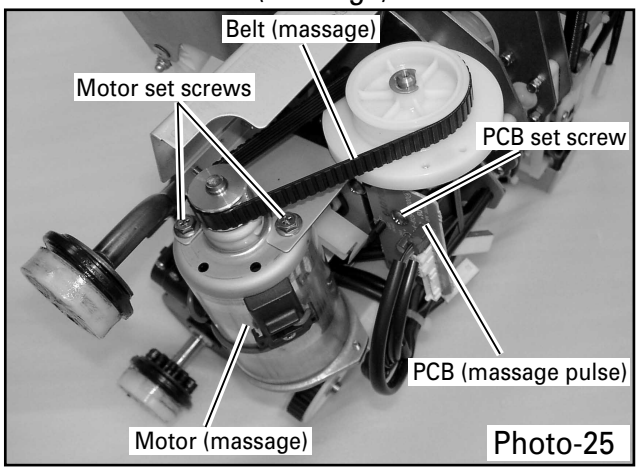


Photo-25

(13) Replacement of Motor (Massage)

1, Remove each cord processing.

2, Disconnect the belt (massage). Photo-25

3, Remove two motor (massage) set screws. Photo-25

4, Remove two stay (under the motor (massage)) set screws and take off the motor (massage). and the stay (under the motor (massage)). Photo-26

5, Remove one motor (massage) set screw and take off the motor (massage). Photo-26

* Exercise care so as not to adhere grease to the driving portions such as belt (Failure to observe this precaution may lead to malfunction due to slippage).

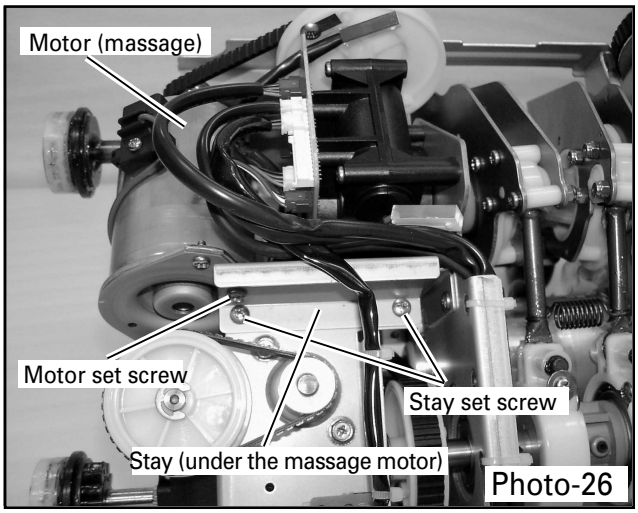


Photo-26

(14) Replacement of PCB (Tapping pulse) and PCB(elvation pulse)

1, Disconnect the connector CN921 of the PCB (tapping pulse). Photo-27

2, Remove one PCB (tapping pulse) set screw and take off the PCB (tapping pulse). Photo-27

3, Disconnect the connector CN911 of the PCB (elevation pulse). Photo-27

4, Remove two PCB (elevation pulse) set screws and take off the PCB (elevation pulse). Photo-27

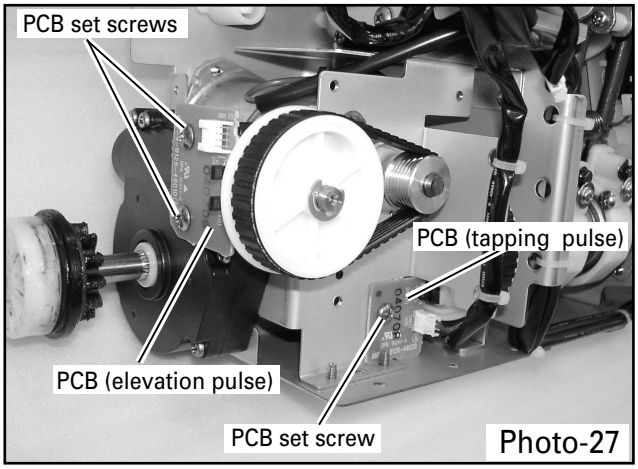


Photo-27

(15) Replacement of Motor (elevation)

* Take off the motor (massage) in advance.

1, Remove each cord processing.

2, Remove two stay motor (elevation) set screws. Photo-28

3, Remove two motor (elevation) set screws. Photo-28

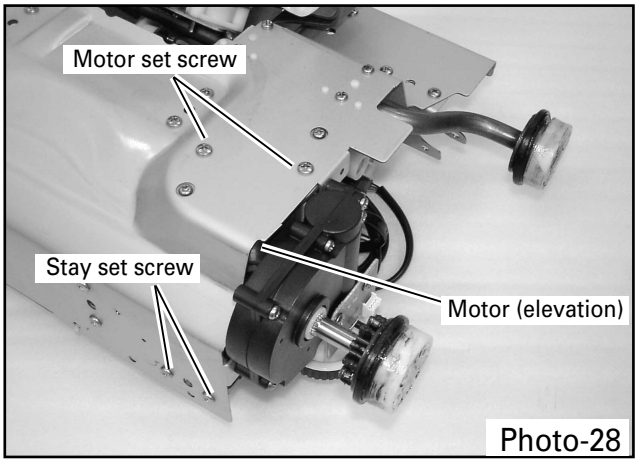


Photo-28

4, Disconnect the belt (elevation). Photo-29

5, Remove two gear box (elevation) set screws, slide the gear box outwards, and turn it clockwise as shown in Photo-30. Photo-29, 30

6, Remove two stay motor (elevation) set screws. Photo-29

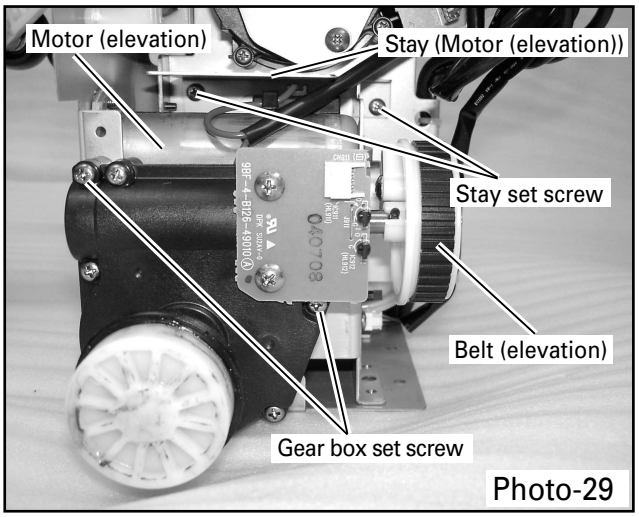


Photo-29

7, Remove two motor (elevation) set screws and take off the motor (elevation). Photo-30

* Exercise care so as not to adhere grease to the driving portions such as belt (Failure to observe this precaution may lead to malfunction due to slippage).

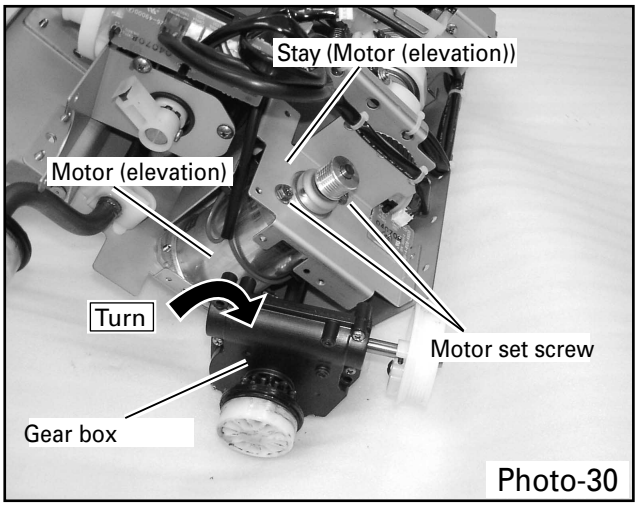


Photo-30

(16) Replacement of Motor (Tapping)

* Take off the motor (massage) and motor (elevation) in advance.

1, Disconnect the belt (tapping). Photo-31
2, Remove ring E 10 and pull out pulley (tapping) from shaft. Photo-31
3, Remove one holder (magnet width) set screw and pull out holder (magnet width) from shaft. Photo-31
4, Remove ring C 13 from shaft. Photo-31

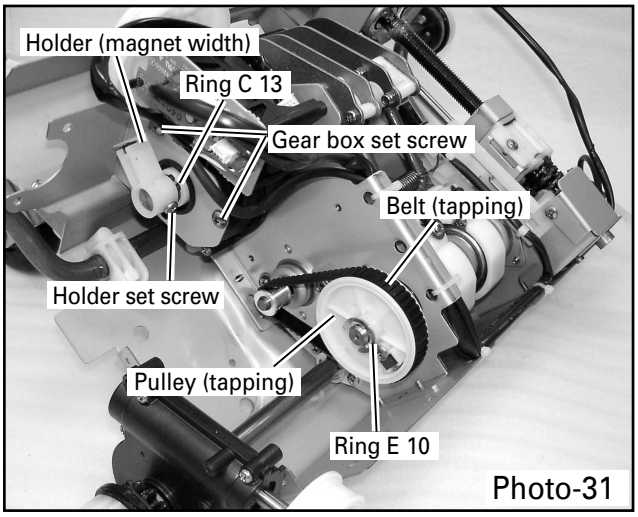


Photo-31

5, Remove two stay (motor massage) set screws. Photo-32
6, Remove seven stay (A) set screws. Photo-32

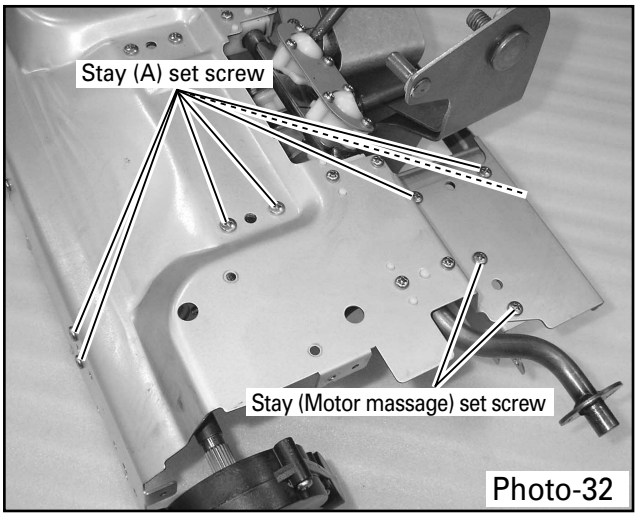


Photo-32

5, Remove two holder (shaft tapping) set serews. Photo-33
6, Remove ring E 10. Photo-33
7, Remove two motor (tapping) set screws. Photo-33

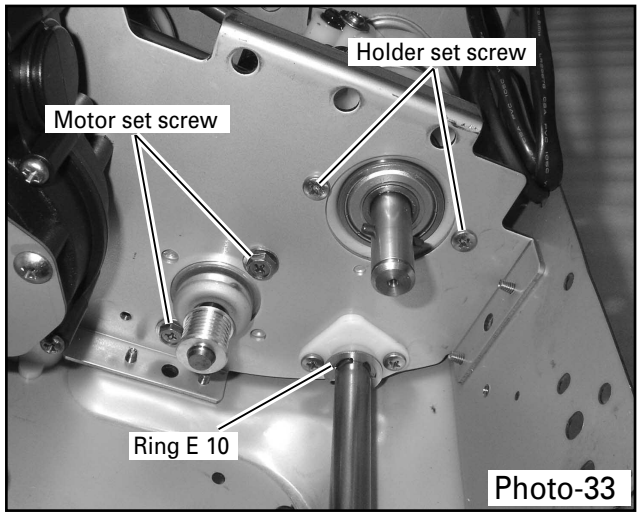


Photo-33

8, Move stay (A) along a shaft. Photo-34
9, Take out the moter (tapping). Photo-34

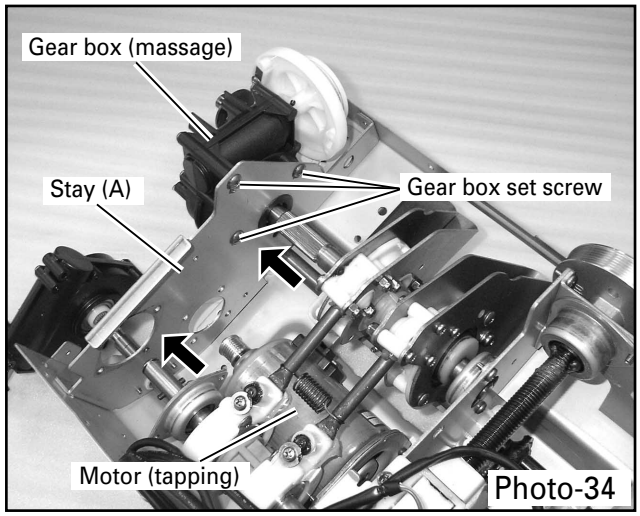


Photo-34

(17) Replacement of Gear box (Massage)

1, Remove two gear box (massage) set screws. Photo-31
2, Remove three gear box (massage) set screws and pull out gear box (massage) from shaft. Photo-34

(18) Replacement of Limit switch (Elevation)

1, Remove one cover (shaft screw) set screw and take off the cover (shaft screw).
Photo-35

2, Take off the holder (limit switch).
Photo-35

3, Disconnect the limit switch. Photo-35

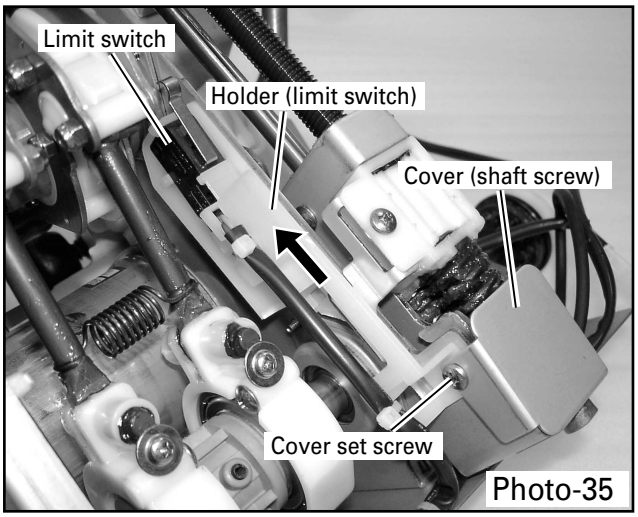


Photo-35

(19) Replacement of Volume rotary

* Take off the motor (strength) in advance.

1, Remove one cam (pressure) set screw and take off the cam (pressure).
Photo-36

2, Loosen a nut off volume fixation and take off the volume rotary. Photo-36

3, Disconnect the volume rotary.
Photo-36

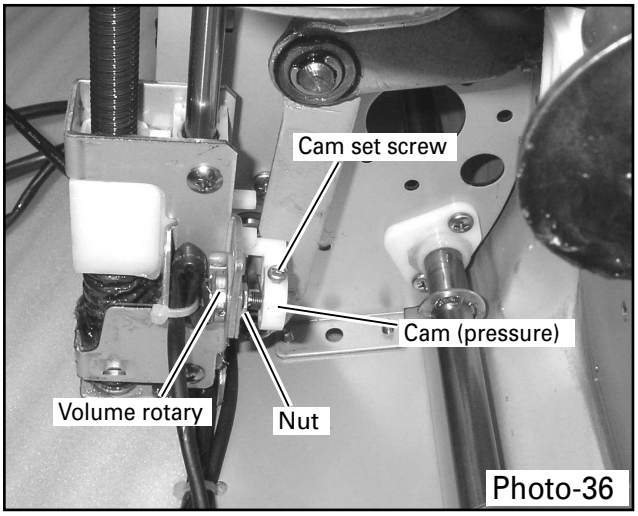


Photo-36

(20) Replacement of Transfommer

1, Disconnect the transformer connector.
Photo-37

2, Remove two cover (transformer) set screws and take off the cover (transformer).
Photo-37

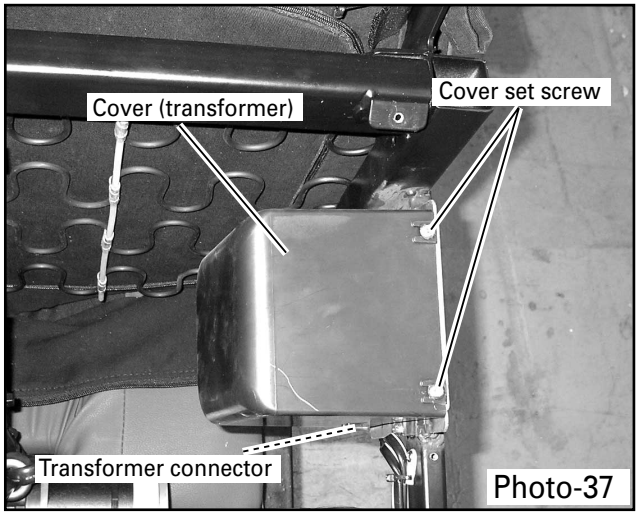


Photo-37

3, Remove transformer set serews.
Photo-38

4, Remove cord bushing. Photo-38

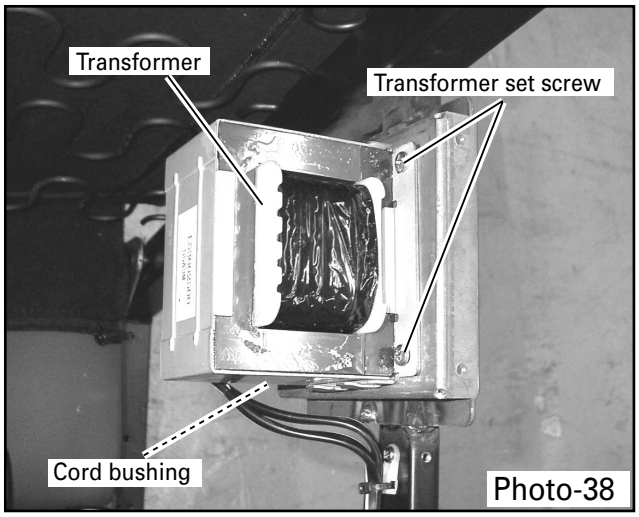


Photo-38

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